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WHAT TO DO

IN

CASES OF POISONING

BY

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First American from the Fifth English Edition.

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PREFACE TO AMERICAN EDITION.

THE continued demand for Dr. Murrell's syllabus of poisons has shown that his judgment was correct in deciding that such a book was wanted, and also demonstrated that his effort to meet that want was successful. As the work has reached its fifth edition in England, it has been thought that, in its revised and extended form, it would meet with an equally appreciative reception by the profession of this country. Owing to the differences in pharmacopœial nomenclature and in some of the formulæ, it has been subjected to careful revision while going through the press, and a few changes have been made which may increase its usefulness to American physicians.

FRANK WOODBURY, M.D.

PREFACE TO THE FIFTH EDITION.

THIS work has reached a fifth edition, but it is not my fault, and I disclaim all responsibility in the matter. I am told it has been the means of saving many lives, and I have no doubt this is true, for I hear that a gentleman who thought of poisoning himself changed his mind on reading the directions for treatment. He was of a retiring disposition and objected to have a pint of hot strong coffee injected into his rectum.

A complaint has been made that the book is getting too big. I admit it, but the fact is there are too many poisons now-a-days. If people who contemplate committing suicide would only adopt a uniform method it would facilitate matters greatly.

I have introduced a chapter on "The Fee," which is very often forgotten.

WILLIAM MURRELL.

38 Weymouth Street, Portland Place,
London, England.
December 1st, 1886.

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INTRODUCTION.

IF sent for to a case of poisoning go at once—the patient's life may depend on your prompt attendance. If at night, do not stop to dress—scanty attire is permissible on these occasions.

Take your antidote bag or case with you. If you have neglected to provide yourself with one, lose as little time as possible in hunting for what you want. Do not go without a stomach-pump or tube and remember that you will require your hypodermic syringe, and very likely the solution of atropine. Your knowledge of the treatment of cases of poisoning may be excellent, but if you are without the requisite appliances you are of very little use.

Inquire of the messenger what is the matter. His information will probably be unreliable, but you may get a hint that will enable you to decide at once on a plan of action.

Go straight to your patient and do not waste time in talking to his friends.

Make your diagnosis as quickly as you can, and commence treatment at once. If in doubt you will

probably not be far wrong in giving a hypodermic injection of apomorphine or some other good emetic.

Order at once everything you are likely to require and send for anything you may have forgotten, so that there may be as little delay as possible.

If the room is full of people get rid of them or they will hamper your movements. Do not try to turn them out or they will make a scene and add to your troubles, but give them something to do—tell them to go and make coffee, for example. If you notice vomited matter, put in a cupboard or other safe place, when you have time; it may be wanted. Take charge of any bottles that may be about, even if they are empty.

Time is of the utmost importance, but try and avoid all appearance of hurry and give your orders quietly and calmly.

Never regard a case as hopeless. In every case, if you see the patient at once, and have the requisite appliances at hand, there is a good chance of recovery. In children and those enfeebled by disease, the prognosis is not so good. If the drug has been taken hypodermically it is an awkward complication.

Do not relax your endeavors because at first your efforts appear unavailing. You may have to work away for three or four hours before there is much improvement.

Should you have a consultation? This is a difficult question to answer, so much depends on the particular circumstances of the case. If you are quite sure of yourself and know you can pull your patient through, the fewer people you have the better; but if the issue is doubtful it is a great help to have a

friend who will not only give you the benefit of his advice but will share the responsibility. You cannot pay a man a greater compliment than to call him in in consultation in a case like this. Often enough it is not only the patient's life, but the family reputation which is at stake.

Do not leave your patient alone even when he has apparently quite recovered. Often enough as the circulation improves the symptoms reappear, probably from reabsorption of the poison. When there is a suicidal tendency there may be a renewed attempt in some other form.

Be sure of your diagnosis. Some time ago I was called in to see a young lady who was said to have attempted suicide—it was a love affair—with laudanum. I applied the stomach-pump without a moment's delay and then inquired how much she had taken. They said "a large quantity — two doses," so I used the stomach-pump again. I could not detect any smell of laudanum, so I asked how much she had taken altogether, when I found to my disgust that it was only six drops! I gave a favorable prognosis and went home.

Be cautious in giving a diagnosis, especially if you yourself are not very sure what is the matter, and be still more cautious in giving a prognosis. It is not a wise thing to endeavor to calm the friends by telling them there is "no danger," or that he "will be all right soon," for you may prove a false prophet, and they will not readily forgive you.

When you get home jot down a few notes of what happened, noting especially time, doses, etc. The circumstances are fresh in your memory, and if you

fail to take this precaution you may find to your cost how quickly things are forgotten.

It is possible that you may experience a difficulty in remembering the antidotes to the various poisons. If so, rest assured that your knowledge of pharmacology is defective. All rational treatment of cases of poisoning is founded on a correct appreciation of the physiological action of drugs.

The Diagnosis of Cases of Poisoning.—How can you tell from what poison the patient is suffering? Sometimes nothing is more easy, whilst at others it is extremely difficult to arrive at a correct conclusion. A search for the bottle which contained the poison, or an inquiry of the nearest chemist may, of course, help you, whilst a knowledge of the sufferer's previous habits and of his disposition may be of some assistance. The diagnosis is not always so easy as it looks at first sight. For example, you are called in to a patient who is evidently suffering from the effects of some narcotic poison, and on a table close at hand you find a hypodermic syringe, and a bottle of morphine; you conclude at once that it is a case of morphine poisoning, but you may be wrong. The patient had intended to kill himself that way, but dreading the trifling pain of the puncture, or not being expert in the use of the syringe, changed his mind at the last moment, took 300 grains of chloral and threw the bottle under the grate. (For hint as to mode in which death by suicide may be made to simulate death from natural causes see death of Gammon, in Warren's "Ten Thousand a Year.") Do not forget the possibility of a number of poisons having been taken together. In one case a patient

adopted a curious combination—a packet of Battle's Vermin Killer, two drachms of laudanum and then half a drachm of red precipitate. It is a good plan to make yourself acquainted with the composition of those patent medicines which possess active properties. There is no royal road to diagnosis, and the only way to arrive at a correct conclusion is to utilize your knowledge of the physiological action of drugs. The following lists may be of some use, but no attempt has been made to render them complete, and they must be taken as being merely suggestive.

You find the Patient Dead.

PRUSSIC ACID (death in a few minutes at the outside); CYANIDE OF POTASSIUM (usually kills very quickly); STRONG AMMONIA (may kill in a few minutes); CARBONIC ACID GAS (if pure may kill almost at once); CARBONIC OXIDE; OXALIC ACID. Almost any active poison if given in a very large dose.

The Patient is Comatose.

OPIUM; MORPHINE; ALCOHOL; CHLORAL; CHLOROFORM; CAMPHOR.

The Patient is in a condition of Collapse.

STRONG ACIDS; ALKALIES; ACONITE; ANTIMONY; ARSENIC; TOBACCO; LOBELIA. Most poisons towards the last.

The Patient is Delirious.

BELLADONNA (noisy, pleasing delirium, "the insane root that takes the reason prisoner);" HYOSCYAMUS; STRAMONIUM; CANNABIS INDICA; ALCOHOL; CAMPHOR.

The Patient is Tetanised.

NUX VOMICA; STRYCHNINE (think of vermin killers); ANTIMONY; ARSENIC. There may be a condition approaching tetanus from excess of pain—in poisoning by strong AMMONIA for example.

The Patient is Convulsed.

This may mean anything, the term being used vaguely. ANTIMONY; ARSENIC; CARBONIC OXIDE; ACONITE. Strong acids such as ACETIC, or SULPHURIC, or strong alkalies such as AMMONIA.

The Patient is Paralyzed.

PHYSOSTIGMINE; CONIUM (from below upwards); GELSEMIUM; ACONITE; ARSENIC; LEAD.

The Pupils are Dilated.

BELLADONNA and ATROPINE; HYOSCYAMUS; STRAMONIUM; OPIUM (in last stage); ACONITE; ALCOHOL; CHLOROFORM (when taken in liquid form); CONIUM.

The Pupils are Contracted.

OPIUM (very strongly if a large dose); PHYSOSTIGMINE; CHLORAL (during sleep).

Skin dry.

BELLADONNA and ATROPINE; HYOSCYAMUS; STRAMONIUM.

Skin moist.

OPIUM; ACONITE; ANTIMONY; ALCOHOL; TOBACCO; LOBELIA. Almost any poison during the stage of collapse.

Rash on Skin.

BELLADONNA (resembles rash of scarlet fever); STRAMONIUM (much like the belladonna rash);

CHLORAL (urticaria); ARSENIC (eczema, or may be like scarlet fever); ANTIMONY (pustular, like small-pox, but rare); OPIUM (itching, followed by urticaria or papulous or roseolous patches, not common). Many other drugs excite cutaneous eruptions. For example, Bromide of Potassium and Tar produce acne, Copaiba, Cubebs, and Salicylic Acid give rise to urticaria, and Iodide of Potassium may bring out a crop of petechiæ. Croton Oil, Tartar Emetic, Sulphur, Hydrastis, and Arnica are well-known rash producers when applied locally. I have known croton-chloral hydrate given for whooping-cough bring on urticaria. The discoloration of the skin resulting from the long-continued administration of silver requires no detailed notice.

Smell of the Drug in the Breath.

PRUSSIC ACID; LAUDANUM; ALCOHOL (brandy, whiskey, etc.); CARBOLIC ACID; ACETIC ACID; AMMONIA; CHLOROFORM; CREASOTE; IODINE; PHOSPHORUS; CAMPHOR; NITROBENZOLE. The smell is not always a reliable guide; for example, laudanum is not uncommonly taken in porter.

Mouth and Tongue dry.

BELLADONNA and ATROPINE; HYOSCYAMUS; STRAMONIUM; OPIUM.

Salivation.

ARSENIC; AMMONIA; CANTHARIDES. Most drugs which produce a corrosive action on the mucous membrane of the mouth or œsophagus. Mercury, jaborandi and muscarin may also be mentioned.

Mouth Bleached.

CARBOLIC ACID (mucous membrane white and hard); AMMONIA (epithelium coming off in flakes); POTASH; SODA; NITRIC ACID (white, soft, or yellow); CORROSIVE SUBLIMATE. The numbness of the lips, mouth, and tongue, produced by Aconite, will not be forgotten.

The Patient is Vomiting.

ARSENIC (brown, mixed with blood); ANTIMONY (white, stringy mucus, may be tinged with blood); DIGITALIS (vomited matter has a grass-green color); ACONITE; COLCHICUM; COLOCYNTH; AMMONIA (stringy saliva mixed with blood, fumes with hydrochloric acid); PHOSPHORUS (vomited matter luminous in the dark).

The Patient is Purged.

ARSENIC (continuous with much pain, stools mixed with blood); ANTIMONY; CORROSIVE SUBLIMATE (green in color, mixed with blood); CANTHARIDES (blood and slime); DIGITALIS; COLCHICUM; COLOCYNTH.

The Patient is suffering from Colic.

LEAD (about navel, eased by pressure); COPPER; ARSENIC; COLOCYNTH.

The Patient is suffering from Cramp.

ARSENIC; ANTIMONY; LEAD.

The Drug was given Hypodermically.

MORPHINE; ATROPINE; STRYCHNINE.

The Poison was Inhaled.

AMMONIA; PRUSSIC ACID; CHLOROFORM; ETHER; BENZINE; CARBONIC ACID GAS; CARBONIC OXIDE; COAL GAS; SEWER GAS; CESSPOOL GAS and EMANATIONS.

Poisons commonly used for Murder.

ARSENIC; ANTIMONY; ACONITE; DIGITALIS; OPIUM; STRYCHNINE; PRUSSIC ACID.

Poisons commonly employed for Suicidal purposes.

OPIUM and its preparations (commonest of all poisons); OXALIC ACID; RAT PASTE; PRUSSIC ACID; CHLORAL; SUGAR OF LEAD; STRYCHNINE. Patent medicines of all kinds unintentionally.

Drugs used popularly as Abortifacients.

ERGOT; RUE; GIN and PENNYROYAL; SAVINE; BITTER APPLE (Colocynth, very popular); HICKERY PICKERY; (Hiera Picra, or Holy Bitter, a mixture of four parts of aloes and one of canella bark); SPANISH FLY (Cantharides); YEW TREE TEA; GREEN TEA in large quantities; QUININE is often supposed to exert a specific action on the pregnant uterus, but that it does so I do not for one moment believe, given, that is to say, in ordinary doses for its tonic action. I have now under treatment a woman who is at least eight months advanced in pregnancy. Last week she had four grains of good sulphate of quinine three times a day, and this week she has six grains, three times a day, but there has been no action on the uterus. I should say that two five-grain compound colocynth pills at bed-time would be far more likely to do harm. ACTÆA RACEMOSA (Cimicifuga racemosa) is sometimes said to be an abortifacient, but there is very little truth in the statement; at all events half a drachm of the tincture three times a day is safe enough even in the later months of pregnancy.

Pulsatilla is supposed to be capable of producing abortion, but this again rests on very imperfect evidence. "A handful of parsley chopped fine in a bottle of gin, allowed to stand a week, and a wineglassful three times a day."—*Hospital Patient.* What truth there is in this I do not know, but the *rationale* is clear enough, parsley contains apiol which is a powerful oxytocic. Jaborandi was at one time supposed to exert a powerful action on the uterus, but the idea is now exploded.

Indigenous Poisonous Plants.

Woody Nightshade (*Solanum Dulcamara*); Garden Nightshade (*Solanum Nigrum*); Deadly Nightshade (*Atropa Belladonna*); Aconite, Monkshood, Wolfsbane or Blue Rocket (*Aconitum Napellus*); Foxglove (*Digitalis Purpurea*); Spotted Hemlock (*Conium Maculatum*); Arum (*Arum Maculatum*); Colchicum (*Colchicum Autumnale*); Bryony (*Bryonia Dioica*); Henbane (*Hyoscyamus Niger*); Fly Agaric (*Amanita Muscaria*); Mezereon, or Spruge Olive (*Daphne Mezereum*); Laburnum (*Cytisus Laburnum*); and a host of others. These will be found figured in Stephenson and Churchill's *Medical Botany*, and in Bentley and Trimen's *Medicinal Plants.*

Supposed Active Ingredients of Popular "Patent Preparations."

"*Neuraline*," aconite with chloroform and rosewater. *Morison's Pills*, aloes and colocynth. *James' Fever Powder*, antimony. *Anti-Fat*, Fucus vesicu-

losus or bladder wrack. *Hunter's Chloral*, chloral with syrup of tolu and elder-flower water. "*Fluid Lightning*," an American application for neuralgia, aconitine, with essential oil of mustard, glycerine, and alcohol. *Perry Davis' Pain Killer*, spirits of camphor, tincture of capsicum, tincture of guaiacum, tincture of myrrh and alcohol. *Brown's Bronchial Troches*, cubebs, conium, acacia, liquorice and sugar. *Lady Webster's Pills*, powdered aloes, powdered mastich and petals of red roses in syrup of wormwood. The pills known as *Lady Hesketh's* and *Lady Crespigny's* have a similar composition. *Valette's Pills* contain sulphate of iron, carbonate of soda, honey and syrup. *Parr's Life Pills*, aloes, rhubarb, jalap, extract of gentian, oil of cloves, soft soap, etc. *Halloway's Pills*, aloes, jalap, ginger and myrrh made into a mass with mucilage. Might give rise to dangerous symptoms if administered to young children or to persons debilitated by age or disease. *Holloway's Ointment*, fresh butter, bees-wax, yellow resin, vinegar of cantharides, Canada balsam, expressed oil of mace and balsam of Peru or liquid storax. It is said that "no two samples are of precisely the same color or consistence." *Mrs. Winslow's Soothing Syrup*, morphia with essence of anise and syrup of balsam of tolu. *Mother's Friend*, opium with carminatives. *Indian Tincture*, capsicum, cannabis indica, ether, and methylated spirit. *Mother Seigel's Curative Syrup*, concentrated compound decoction of aloes with borax, capsicum, gentian, oil of sassafras, oil of winter-green, taraxacum, treacle and rectified spirit. *Reynold's Gout Specific*, colchicum. *Blair's Gout Pills*, finely ground colchicum corms. *Injection*

Brou, sulphate of zinc, sugar of lead, laudanum, tincture of catechu and water. *Locock's Pulmonic Wafers*, lactucarium, ipecacuanha and squills. *Eau de Fleurs de Lys*, "an infallible banisher of freckles," a milky fluid consisting of two and a half per cent. of calomel, a trace of corrosive sublimate and common salt, with water scented with orange flowers. *Eau de Blanc de Perles*, an alkaline fluid with a thick deposit of about fifteen per cent. of carbonate of lead, scented with otto of roses and geranium. *Lait de Concombres* consists of soap, glycerine and cotton-seed oil made into a semi-emulsion with rose-water. *Norton's Chamomile Pills*, aqueous extract of aloes, extract of gentian and essential oil of chamomile. *Kitchener's Peristaltic Persuaders*, probably compound rhubarb pills with a little caraway. *Keating's Cough Lozenges*, lactucarium, ipecacuanha, squills, extract of liquorice, sugar, and mucilage of tragacanth. *Ruspini's Styptic*, a strong solution of gallic acid in spirit of roses and perhaps a little sulphate of zinc. *Roche's Embrocation*, olive oil mixed with oil of amber, oil of cloves and oil of lemons (see *British Medical Journal*, January 5th, 1884). *Holt's Specific* (for whooping-cough), also known as *Hooper's*, is said to contain half a grain of tartar emetic in the dose (see *British Medical Journal*, January 5th, 1884). *Cohosh* is actæa racemosa or cimicifuga. *Hamlin's Wizard Oil* contains camphor, ammonia, sassafras, cloves, chloroform, turpentine and spirit. *Haarlem Oil* is a mixture of balsam of sulphur, Barbadoes tar, oil of amber, oil of turpentine, and linseed oil. *Barker's Poisoned Wheat*, for killing birds, owes its poisonous properties to Cocculus Indicus.

Much useful information concerning the composition of patent medicines will be found in Cooley's *Cyclopædia of Practical Receipts*, and in the *Anatomy of Quackery*, by the same author. See also Kilner's *Compendium of Modern Pharmacy*, 1882.

An Unsuspected Source of Poisoning.

There is a special source of accidental poisoning which is not generally recognized. I refer to the use of pills containing active ingredients coated with a preparation which dissolves very slowly. It is perhaps not generally known that some coatings take three or four days to dissolve. If a patient, for example, were taking digitalis pills, three or four times a day, it might happen that no effect of any kind would be experienced until after an unusually hearty meal, when all the coatings might be dissolved at once and the patient would unexpectedly show symptoms of poisoning. This is not a mere random statement, for I recently had a case of digitalis poisoning under my care which was clearly traced to this source. I have made a number of observations on various pill-coatings and find that some of them dissolve with extreme slowness.

The Antidote Bag and Case.

The Antidote Bag should contain every drug and instrument likely to be required in a case of poisoning. It should be to the Toxicologist what the Midwifery bag is to the Obstetrician. It should always be kept filled ready for use, so that in case of emergency the doctor would simply have to take or send for his bag, and would not have to look for

stray bottles or instruments at a time when every moment is of importance.

The Antidote Bag or Case should contain :—

I. Instruments.

1. Stomach-pump or stomach-tube, which might also be used as an enema apparatus. There should be a small œsophagus tube for children. If a separate enema apparatus be required Ingram and Son's is one of the best, and it is warranted "not to split."
2. Hypodermic syringe. A cap at the end to prevent the piston from getting dry is a useful addition. Messrs. Burroughs, Wellcome & Co. make a small pocket hypodermic syringe of solid silver. It is unbreakable and cannot possibly get out of order.
3. Flexible catheter, No. 8.

II. Emetics.

1. Sulphate of Zinc in half-drachm powders ; one or two to be given in hot water, repeated if necessary.
2. Powdered Ipecacuanha in ℈j powders ; one or two to be given in water as an emetic.
3. Apomorphine (1 in 50 solution of the hydrochlorate in water) ʒij. Five drops hypodermically as an emetic.

III. Stimulants.

1. Brandy, ʒiv.
2. Sal Volatile, ʒiv.
3. Chloric Ether, ʒiv.
4. Coffee in ¼ lb. tin ; to be used as an enema in poisoning by opium or other narcotics.

It is possible that caffeine might be substituted for the coffee. The best solution for hypodermic use is the "Injectio Caffeinæ Hypodermica." It is made by dissolving 20 grains of caffeine and 17½ grains of salicylate of soda in a drachm of water. It contains a grain in 3 minims, and 6 minims may be given at a dose. It must be remembered, however, that the warmth contained in a pint of hot coffee is not without benefit.

IV. ANTIDOTES.

1. Dialyzed iron, ℥xvj ; should be given *ad libitum* in cases of arsenic poisoning. Wyeth's is the best.
2. Acetic Acid, ℥iv ; two teaspoonfuls or more in water in cases of poisoning by potash, soda, etc. To be frequently repeated. Vinegar is a good substitute.
3. Syrup of Chloral, ℥iv ; of great value in strychnine poisoning. Three drachms (30 grains of chloral) may be given to begin with.
4. French Oil of Turpentine, ℥ij ; as an antidote in phosphorous poisoning. To be given in half-drachm doses every quarter of an hour.
5. Heavy magnesia (Magnesia Ponderosa) ; may be given almost *ad libitum* in poisoning by acids.
6. Tannic Acid, ℥ij ; in strychnine poisoning may be given in teaspoonful doses.
7. Bromide of potassium in ʒij powders ; in strychnine poisoning may give two powders to begin with, and follow with one every ten minutes for an hour or more.

8. Nitrite of Amyl Capsules, 5 minims in each. To inhale in chloroform poisoning, and in poisoning by aconite.
9. Chloroform, ℥iv ; in strychnine poisoning.

V. Hypodermic Injections.

1. Sulphate of Atropine solution (1 in 100) B.P., ʒj ; in poisoning by aconite, morphine, pilocarpine, etc. The ordinary dose for hypodermic use would be two minims, repeated in a quarter of an hour if necessary.
2. Acetate of Morphine solution (1 in 10) B.P., ʒj, useful to ward off shock. Ordinary dose for hypodermic use, five minims.
3. Aconitine (English) solution (1 in 240) ʒj ; in poisoning by digitalis. Two minims hypodermically ; may be repeated in half an hour.
4. Pilocarpine Nitrate (1 in 20) ʒj ; given in ten minim doses, frequently repeated, in poisoning by belladonna or atropine.
5. Nitrate of Strychnine solution (1 in 50) ʒj ; in chloral poisoning given in two minim doses.
6. Tincture of Digitalis, ʒj ; in aconite poisoning in 20 minim doses hypodermically.

Compressed tabloids of atropine, morphine, etc., may be substituted with advantage for many of these solutions. I have tried nearly all the Wyeth compressed hypodermic tabloids, and find that they are reliable. They may be obtained of Burroughs, Wellcome & Co., Snow Hill Buildings, E. C. If the necks of bottles are not very carefully ground, the

stoppers either leak or at a critical moment are found to be firmly fixed. The tabloids occupy less room, and need not be in stoppered bottles. Those who are interested in the subject should read Bartholow's *Hypodermatic Medication*, 4th edition, or Bourneville's *Manuel des Injections Sous-cutanées*. An English translation of the latter is published by Mr. Lewis, 136 Gower Street, W. C.

VI. The Poison Book (latest edition).

An Antidote Bag or Case of some kind should be kept in readiness at every police station, and in the casualty room of every hospital. It is astonishing how badly even some of our large hospitals are provided with appliances for the treatment of cases of poisoning. I know of two hospitals where, until recently, there was not even a stomach pump, and there are many others, both in London and the country, where there is no efficient douche for use in cases of opium poisoning.

It is a good plan to inspect the bag or case at intervals to see that everything is in working order. The piston of the hypodermic syringe always works badly if not looked after. A little vaseline may be applied to the stoppers of the bottles.

Martindale's Antidote Bag.

Mr. Martindale, of 10 New Cavendish Street, W., has, for some years past, made me a bag which answers the purpose admirably.

It contains in a morocco bag a hypodermic syringe, a case of solutions, and a series of chemical and physiological antidotes. The following is the list of medicines :

Dialysed Iron.
Syrup of Chloral.
Chloroform.
Aromatic Spirit of Ammonia.
Spirit of Chloroform.
French Oil of Turpentine.
Acetic Acid.
Tincture of Digitalis.
Nitrite of Amyl Capsules.
Sulphate of Zinc.
Ipecacuanha.
Bromide of Potassium.
Calcined Magnesia.
Tannin.
Hypodermic Injections of—
Strychnine.
Morphine.
Atropine.
Apomorphine.
Pilocarpine.

Its price is five guineas. A larger bag suitable for hospitals contains an additional supply of drugs, a catheter, and a lever stomach-pump.

The Burroughs' Antidote Case.

The Burroughs' Antidote Case, made by Messrs. Burroughs, Wellcome & Co., is wonderfully useful and compact. It contains a stomach-tube of novel construction, Wyeth's dialysed iron, sal volatile, French oil of turpentine, and tabloids of sulphate of zinc (ten grains), chloral hydrate (ten grains), and bromide of potassium (ten grains), with capsules of nitrite of amyl. There is also a hypodermic syringe

fitted with a cap, a glass mortar and pestle for dissolving the tabloids, and a case of tubes for hypodermic use containing tabloids of apomorphine (one-tenth of a grain), sulphate of morphine (a quarter of a grain), sulphate of atropine (one-sixtieth of a grain), hydrochlorate of pilocarpine (one-third of a grain), sodio-salicylate of caffeine (half a grain), sulphate of strychnine (one-sixtieth of a grain), digitaline (one-hundredth of a grain), and aconitine (one hundred and thirtieth of a grain). It measures about eight inches by three and when full weighs less than two pounds. Its price is two guineas complete. It is a capital case and is a marvel of compactness and cheapness.

The Battery.

A battery (interrupted current) is useful, and may be obtained for about £2 2*s*. I have tried Maw's and also Spanner's and like them very much. Meyer & Meltzer's (71 Great Portland street) is also an excellent instrument. The best of all, however, is the Appareil d'Induction Volta Faradique, made by A. Gaiffe, of Paris. It is a wonderful little instrument and is so small that it can be carried in the breast-pocket. It is ready for use in a moment and there is nothing to spill and nothing to get out of order. It costs only about 20 francs, an absurdly small price. In poisoning by ammonia or nitric acid tracheotomy instruments might be required. In cases of prolonged insensibility the bladder should be emptied.

The Stomach-Pump.

Every doctor should have a stomach-pump, or an efficient substitute. It may not be wanted for years,

but it may be wanted to-morrow, and a life, or many lives, may depend on its being in working order. A good stomach-pump, with flute-key action and everything complete, may be obtained for £2 or even less, and it requires no special knowledge to use it. The only points to remember are that it is advisable to pump in a little water before trying to empty the stomach, and that the stomach should not only be emptied, but thoroughly washed out. Antidotes may be conveniently introduced in this way. In cases of poisoning with the mineral acids—nitric, hydrochloric, and sulphuric acids, for example—it is not safe to use it.

Fortunately, in cases of emergency it is no very difficult matter to rig up an apparatus that will effectually empty and wash out the stomach, without a stomach-pump. Take a piece of India-rubber tubing, about six feet long, and pass it down the œsophagus till it reaches the stomach; now hold the other end well above the head, and by means of a funnel pour in water till the stomach is nearly full. If the tube be pinched while distended with water, and the lower end placed in a basin below the level of the stomach, it will act as a syphon and the stomach will be emptied. This may be repeated three or four times till the water comes back quite clear and free from smell. In the absence of a funnel a common India-rubber bottle may be used to fill the tube, or, for the matter of that, even the mouth filled with water. A common Higginson's enema apparatus will do very well to inject the water, and if it has no valves, or if they do not work—not an uncommon occurrence—it will help to form part of the syphon. Those who are

interested in the subject will do well to read a paper by Prof. Harvey, formerly of Aberdeen, in the *British Medical Journal* for October 16, 1875.

Transfusion.

In many cases of poisoning transfusion might be employed with advantage as suggested by Dr. Ringer in the *Lancet* of July 14th, 1883. It is not necessary to use blood, as a saline solution will do just as well. It would be best to inject it into the circulation direct, but in the absence of a suitable apparatus it could be introduced by the stomach-pump into the stomach or rectum from which it would probably be absorbed. The following is the formula I use: Common salt, one drachm, bicarbonate of sodium, four grains, chloride of calcium, three grains, chloride of potassium, one grain, water, twenty ounces at a temperature of 100° F. On several occasions I have injected this into the peritoneal cavity with good results. The only apparatus employed (*Lancet*, April 21st, 1883) was the canula of an aspirator attached to a piece of India-rubber tubing, the fluid being allowed to run in by syphon action.

Emetics.

The Emetics commonly employed are the following:

1. Apomorphine.

One-tenth of a grain of the hydrochlorate—5 minims of the 1 in 50 solution—hypodermically. The Injectio Apomorphinæ Hypodermica may be used. The statement "that the solution should be made as

required for use'' is all nonsense. Apomorphine is a powerful emetic and usually acts promptly, without the production of much nausea or depression. The solution turns green in a day or two, but retains its activity. I gave a patient a hypodermic injection of 4½ minims of a 1 in 50 solution of hydrochlorate of apomorphine, which had been kept exposed to the light for three months, and in about three minutes it acted powerfully, completely evacuating the stomach. Six months later I used the same solution in the same dose, and it answered equally promptly, the patient vomiting at intervals for three or four hours. There was no irritation at the seat of injection. It may be given freely, for no unpleasant symptoms as a rule result from even larger doses. Should there be much depression brandy may be given freely. Smaller doses are sometimes recommended, but in cases of poisoning prompt action is essential. If given by mouth it is much less certain, and a larger dose is required. Although prepared from morphine it differs so completely in its action from that alkaloid that there is no reason why it should not be given in cases of opium poisoning. I have tried Savory and Moore's apomorphine gelatine discs, one-tenth of a grain in each, and find that they are active. Burroughs and Wellcome's compressed tabloids are excellent, the tenth of a grain always producing emesis in from three to four minutes.

Apomorphine can be obtained either from morphine or codeine. Apomorphine from codeine has the same action as apomorphine from morphine. I find that the hypodermic injection of five minims of a 1 in 50 solution of apomorphine hydrochlorate from codeine induces copious vomiting.

Apocodeine is said to be an emetic. It may be, but it is certainly much less active than apomorphine. I gave two patients hypodermic injections of fifteen minims of a 1 in 50 solution of hydrochlorate of apocodeine without effect. The solution was prepared by Mr. Martindale, who took especial care to obtain a reliable specimen of the drug. Both patients subsequently vomited freely after an injection of apomorphine.

2. Common Salt.

Two table-spoonfuls in half a pint of tepid water. Not a very certain emetic, but has the advantage of being always at hand.

3. Mustard (the flour).

A table-spoonful in half a pint of water. This too is readily procured.

4. Sulphate of Zinc.

Thirty grains in water, repeated if necessary; prompt and safe.

5. Powdered Ipecacuanha.

Thirty grains or more in water; produces very little depression, and does not irritate the mucous membrane of the stomach.

6. Ipecacuanha Wine.

Two table-spoonfuls in water; not very prompt in its action.

7. Sulphate of Copper.

From five to ten grains dissolved in water.

8. Tartar Emetic.

Three grains in water—slow in action and usually causes much nausea and depression.

9. Antimony Wine.
An ounce or more in water.

10. Carbonate of Ammonium.
Half a drachm or more in water.

11. Powdered Alum.
A table-spoonful in water. Not very reliable.

In cases of poisoning it is not so much a question as to which is the best emetic as to which can be obtained at once. Many people vomit very readily, almost at will, and with them a draught of tepid water, dirty or greasy by preference, with the introduction of the fingers into the throat, will speedily produce the desired result. In many cases it is desirable to give a combined emetic. Thus, we may begin with a table-spoonful of mustard in a tumbler of water, and follow it as quickly as possible with an

Emetic Draught.

Sulphate of Zinc . . .	30 gr.
Powdered Ipecacuanha . .	50 gr.

To be taken in water.

This, again, may be followed by a hypodermic injection of gr. $\frac{1}{10}$ of Apomorphine (5 minims of the 1 in 50 solution), repeated if necessary.

The action of the emetic is facilitated by giving plenty of tepid water. In narcotic poisoning it is often a most difficult matter to get the patient to vomit.

Multiple Antidote.

Many attempts have been made to formulate a multiple officinal antidote, to obtain that is a mixture which would neutralise the toxic action of most, or

even all, of the active poisons. Such attempts are hardly likely to prove successful, but the following is probably the best formula for such a preparation :

Saturated solution of Sulphate of Iron	100 parts.
Water	800 "
Calcined Magnesia . . .	88 "
Purified Animal Charcoal . .	40 "

The iron solution should be kept separately and the magnesia and animal charcoal mixed in a bottle with water. When required for use the iron is poured into the bottle and the whole shaken well together. It may be administered *ad libitum*, a wine-glassful or more at a time. It is said to render preparations of arsenic, zinc, and digitalis absolutely inert, and partly to neutralise the action of mercury, morphine, and strychnine. It has no action on the alkalies, and none on phosphorus, antimony, or hydrocyanic acid.

Iodide of starch has also been recommended as a multiple antidote. It is said that if given in large doses, it is "efficacious in poisoning by sulphuretted hydrogen, the alkalies, the alkaline sulphides, and especially the alkaloids with which iodine forms an insoluble compound."

Massage in the Treatment of Cases of Poisoning.

Massage is undoubtedly of value in many cases of acute and chronic poisoning. In acute chloral poisoning and poisoning by aconite it serves to maintain the temperature, whilst in mercurial poisoning and chronic lead poisoning it does as much as anything to restore the condition of the affected muscles. The

best methods are *effleurage* and *pétrissage* combined, but in opium poisoning *tapotement* is of service. To be of the slightest value it must be performed by a properly trained and qualified person. Amateur "mashing" is worse than useless. I have seen so much good from it in cases of spinal irritation, infantile paralysis, rheumatism, neuralgia, and other diseases, that perhaps I am prejudiced in its favor. Speaking from some experience I should say that it was one of the best modes of treatment for the morphine habit. In the case of a lady recently under my care the improvement it effected was very marked. For details of methods, see *Massage as a Mode of Treatment*, 1886.*

Fatal Dose.

It is no easy matter to say positively what is the fatal dose of any particular poison. Much depends on the age of the patient, the condition of the stomach as regards food, the occurrence of copious and early vomiting, the administration of appropriate remedies, and so on. The question of tolerance is not to be lost sight of, especially in dealing with such drugs as opium, alcohol, arsenic, and corrosive sublimate. In many of the recorded cases the exact quantity taken is not known, whilst in others the strength of the preparation is not given. Amongst the most energetic toxic agents are Aconitia (gr. $\frac{1}{10}$), Digitaline (gr. $\frac{1}{4}$–$\frac{1}{2}$), Hydrocyanic acid (gr. i), Strychnine (gr. i–ii), Nitro-Benzol, and some of the animal poisons.

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* London, H. K. Lewis, 136 Gower Street.

THE LEGAL ASPECTS OF CASES OF POISONING.

Should the patient die, what are you to do? If you suspect foul play leave no stone unturned to bring the guilty parties to justice. Place yourself in the murdered man's position, and act for him. Do not leave the house till the case is in the hands of the police. Take charge of vomited matter, bottles, instruments, etc., and lock them up.

In cases of accident or suicide it is not incumbent on you to act the part of a police officer.

Do not make a post-mortem examination until you receive an order from the coroner to do so. If you are not accustomed to make post-mortem examinations, and the case is of importance and likely to attract public attention, call in a skilled pathologist to "assist" you. You will give evidence first, and he can confirm your statements. Do not discount your evidence by telling people what you find; they will hear at the inquest.

If you are ordered to make an analysis of the contents of the stomach, or to examine the viscera for poison, you had better decline the responsibility unless you have a better knowledge of chemistry than falls to the lot of most medical men. Such work should be left to those who make it a special study. You are a medical man practising your profession, and have no wish to usurp the functions of the analytical chemist. You may get some useful hints, however, from Wormley's *Micro-Chemistry of Poisons*, second edition, 1885.

Before giving evidence think over very carefully what you are going to say. Better to rehearse it a dozen times in the privacy of your own chamber

than to break down in public. Arrange your facts clearly and concisely, and divest your language as far as possible of technicalities. Give your evidence slowly, for it has to be taken down, not only by the coroner, but by the reporters. Give it in your own way, and do not be interrupted by any one. The coroner may stop you and say: "Quite so; and then you applied the appropriate remedies." This is all very well if you forgot something, but if your treatment has been strictly correct let the court have the benefit of it.

Think over carefully the questions you are likely to be asked, and be prepared to answer them. Read up the literature of the subject, and let your knowledge be up to date. If you do not know much about it, telegraph to some leading toxicologist and get him to coach you up in it, or at least to send you an abstract of the recent literature. It will pay you in the long run. Barristers constantly do this—why should not you?

Answer concisely, and to the point, and never volunteer a statement, unless it be to correct a false impression you may have created by a previous answer. Do not imagine that the object of cross-examination is to elicit the truth.

Do not be afraid of cross-examination. If you have read up your subject you should be more than a match for any barrister. His knowledge is of necessity superficial, and he is hampered by the fear of displaying his ignorance.

Ptomaines—Cadaveric Alkaloids.

Every medical man should get up the subject of

Ptomaines (from πτῶμα, a dead body), before giving evidence in a case of poisoning. They are supposed to be alkaloids generated during decay and they closely resemble the vegetable alkaloids—veratrine, morphine, and codeine, for example—not only in chemical characters, but also in physiological properties. They are commonly produced in substances which after exposure have been excluded from the air, in buried corpses for example. Defence in case of poisoning may be that the reactions obtained were due to cadaveric alkaloids and not to any poison administered. See Stevenson on Ptomaines, *L. M. R.*, Nov. 15th, 1881, and *B. M. J.*, June 23d, 1883, also his articles on same subject in Taylor's *Medical Jurisprudence*, 3d edition, and Appendix to Quain's *Dictionary*. The chemistry of the subject is well given in Wynter Blyth's *Poisons, their Effects and Detection*, p. 461.

The Fee.

I am often asked what should be the fee in a case of poisoning. It is not an easy matter to discuss, but still the subject cannot be passed by in silence. Clearly it is permissible to charge more for the treatment of a case of poisoning than for an ordinary visit. The doctor may be kept for some considerable time, and the duties he has to perform are not always of an agreeable nature. He is sent for at a moment's notice, and as it is a matter of life and death he has to go at once, possibly to his great inconvenience and to the inconvenience of his other patients. The responsibility is great, and the slightest error in judgment may become the subject of public inquiry and subject him to ridicule and opprobrium. Moreover,

he has to furnish himself with special and expensive apparatus which is rarely needed, and is useless for other purposes. Taking these facts into consideration, I think his fee should be the fee he would charge the same people for an ordinary midwifery case. It will vary according to the circumstances and social position of the patient, from two to twenty guineas. A specialist, and by that I mean one who has made the treatment of cases of poisoning his particular study, would be justified in charging from twenty-five to fifty guineas, including the subsequent attendance.

THE POISONS IN ALPHABETICAL ORDER.

Abrus Precatorius.

Jequirity Seeds—Prayer Beads—Jumble Beads.

These are the seeds of the Indian liquorice plant (*Abrus Precatorius*) which grows wild in most parts of India. There are several varieties, but those most commonly met with in this country are of a bright red color, with a black spot or eye. They are often sent over as presents and are given to children to play with, so that they may have an opportunity of swallowing them. They have been used in the form of an infusion in the treatment of granular lids and other eye affections. They are said to be poisonous when swallowed, but this probably is a mistake, as they are eaten as an article of diet in Egypt. In India they are used illegitimately for killing cattle, especially by the chamar or skinner caste. The seeds are powdered, moistened with water, and then rolled into little pointed cylinders or needles called "suis." The "sui"—or "sutari," as it is sometimes called from its resemblance to a cobbler's awl—is dried and fixed into a wooden handle. The animal is stabbed with one of these instruments, the point being left in the cellular tissue, and dies within a few hours. The abrus contains no alkaloid or active principle, but probably a kind of ferment, which acts in somewhat the same way as does papayotine, giving rise to the formation of enormous numbers of micrococci and bacteria in the blood. The mortality amongst cattle from the prevalence of the practice is very great. "Sui" poisoning in man is not common, but there are several cases on record, and it is possible that it might be used for the purposes of secret murder, *B.*

M. J., Nov. 24, 1883. It is difficult to say what the treatment should be, but sweating with pilocarpine and the free administration of stimulants should be tried.

Absinthe—Wormwood.

This is the Artemesia absinthium, an indigenous plant belonging to the Compositæ. It contains a volatile oil and a bitter principle, *absinthine*. The liqueur absinthe is an alcoholic solution of oil of wormwood with a little angelica, anise, and marjoram.

Half an ounce of the oil produced convulsions with foaming at the mouth, dilated pupils, and symptoms of collapse. Treatment consisted of an emetic and the free use of stimulants. The patient recovered. It had probably been taken for worms.

The habitual use of the liqueur produces a chronic condition which has been called *absinthism*. It is characterized by restlessness at night with disturbed dreams, nausea, and vomiting in the morning, trembling of the hands and tongue, vertigo and epileptiform convulsions, in which the patient loses consciousness, falls, bites his tongue, foams at the mouth, makes grimaces, and throws his arms about. The prognosis is not unfavorable if the habit be discontinued.

Acetic Acid.

How taken.—Not often used as a poison. Glacial acid, used for destroying warts, may be taken by mistake. Vinegar taken by women to prevent corpulence.

Symptoms.—Glacial acid would destroy mucous membrane of œsophagus and stomach, and perhaps

give rise to perforation. Odor in breath, great pain in abdomen, etc., perhaps convulsions, collapse, death.

Treatment.—1. SOAP AND WATER. Large draughts of soap and water to be taken at once. Stomach-pump *not* to be used.

2. LIME-WATER, CHALK AND WATER, or WHITE-WASH AND WATER, if at hand. MAGNESIA may be given freely. DINNEFORD'S FLUID MAGNESIA is useful.

3. MILK, OIL, and thick GRUEL may be used.

4. MORPHINE. A hypodermic injection of half a grain of morphine to ward off shock.

ACONITE.

How taken.—A very active and deadly poison. The plant Monkshood, Wolfsbane, or Blue Rocket (*Aconitum Napellus*), found growing in every cottage garden—all parts poisonous. Root often mistaken for horse-radish, and the leaves have been eaten in salad. In one case aconite root was dropped from a Pickford's van passing through the streets! Tincture has been mistaken for a cordial. Fleming's tincture might easily be mistaken for sherry; was on one occasion mistaken for flavored spirit. Symptoms of poisoning from inhaling the dust in powdering. Death from use of "Neuraline," and other applications for neuralgia. Aconite liniment taken instead of medicine. Overdose of strong tincture taken "for a cold." May be used for purposes of suicide or for murder. Aconitia pills sold by an American firm, and used largely in treatment of neuralgia, etc.

Symptoms.—Warmth at pit of stomach, tingling of mouth, lips, and tongue, feeling of constriction of throat, deglutition frequent, tingling spreads all over body, numbness at tips of fingers, and loss of sensibility, nausea and often vomiting, but may be absent. Loss of sensation, deafness, dimness of sight. Paralysis first of lower, then of upper, extremities. Pulse reduced in strength and frequency, then irregular, and finally almost imperceptible. Respirations shallow, feeble, infrequent. May be convulsions, but as a rule no delirium, and no coma. Pupils generally dilated, but may be contracted if no convulsions. Prostration very great, but mind clear to the last, often with fear of approaching death. Cold clammy perspirations towards the end, and often death quite suddenly, after some slight exertion, as attempting to sit up.

Fatal Dose.—Death, after taking a drachm of the tincture, also from merely tasting Fleming's tincture. Recovery after taking three drachms of Fleming's tincture. Fleming's tincture is six times as strong as the B. P. solution.

Treatment.—1. STOMACH-PUMP, or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (two tablespoonfuls in water), or a hypodermic injection of apomorphine (5 minims of the B. P. solution).

2. STIMULANTS freely, brandy, spirits of chloroform, or sal volatile. If not retained by the stomach, to be well diluted and injected into the rectum, or subcutaneously.

3. ATROPINE. Give a hypodermic injection of gr.

$\frac{1}{50}$ of atropine (2 minims of the 1 in 100 solution), or four drops of solution of sulphate of atropine, or twenty drops of tincture of belladonna, by mouth or rectum. Be guided by pulse, and if it improves, repeat the dose in a quarter of an hour.

4. WARMTH. Apply warmth to extremities by hot towels and hot-water bottles. Friction with the warm hand. Massage (*Brit. Med. Jour.*, May 15th, 1886). Mustard poultice or mustard leaf over the heart.

5. Keep the patient strictly in the RECUMBENT POSITION.

6. DIGITALIS. If no improvement, give a hypodermic injection of gr. $\frac{1}{100}$ of digitaline, or twenty minims of tincture of digitalis, repeating it in twenty minutes if the pulse improves.

7. NITRITE OF AMYL. Inhalations of nitrite of amyl.

8. ARTIFICIAL RESPIRATION for two hours if necessary.

ACONITE AND BELLADONNA.

How taken.—This combination might be taken for suicidal purposes. More frequently a liniment is taken by mistake.

Symptoms.—Would depend much on the relative proportion of the two drugs. Must not be forgotten that belladonna to some extent antagonizes aconite. Probable that symptoms would be the same as in aconite poisoning, but failure of heart's action would not be so marked, the pupils would be dilated and the skin would be dry, with perhaps a rash resembling scarlet fever. Delirium might be present.

Treatment.—1. STOMACH-PUMP, or EMETIC of

mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (two tablespoonfuls in water), or a hypodermic injection of apomorphine (5 minims of B. P. solution).

2. STIMULANTS freely, brandy, spirits of chloroform, or sal volatile. If not retained, dilute and inject into rectum.

3. WARMTH to extremities by hot towels, or hot-water bottles. Friction with the warm hand. Massage. Mustard leaf or mustard poultice over the heart.

4. Keep the patient in the RECUMBENT POSITION.

5. NITRITE OF AMYL. Inhalations of nitrite amyl.

6. ARTIFICIAL RESPIRATION for two hours if necessary.

ACONITE AND MORPHINE.

How taken.—Not a common combination. Might be taken for suicidal purposes, or in a liniment by mistake.

Symptoms.—Would probably be those of Aconite poisoning, with coma and contracted pupils.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful or more of the powder in water), or of sulphate of zinc (twenty grains or more in water), or of ipecacuanha wine (an ounce in water), or a hypodermic injection of apomorphine (one of the tabloids).

2. ROUSING. Flap patient with a wet towel, especially about the chest, and over the region of the heart. Give him AMMONIA and CHLORIC ETHER freely. Keep him in the recumbent position, and do not attempt to walk him about.

3. WARMTH TO THE EXTREMITIES by hot towels, or hot-water bottles. Friction with the warm hand. Massage.

4. ATROPINE. A hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (2 minims in the 1 in 100 solution), or, if not at hand, 4 minims of the solution of sulphate of atropine, or twenty minims of tincture of belladonna by mouth or rectum. If any improvement repeat the dose in a quarter of an hour.

5. COFFEE. An enema of a pint of hot strong coffee.

6. NITRITE OF AMYL. Inhalations of nitrite of amyl.

7. BATTERY. Interrupted current to extremities.

8. ARTIFICIAL RESPIRATION to be maintained for two hours if necessary.

ACONITIA—ACONITINE.

Usually described as an alkaloid obtained from *Aconitum Napellus* or Monkshood, but much of our English Aconitia is in all probability extracted from *A. ferox*, the Indian Aconite.

Commercial aconitine is not a simple substance, but a mixture of several alkaloids, including aconitine, pseudaconitine, and picraconitine. It is generally stated that English Aconitia is at least seventeen times as active as the German, the French being intermediate in power; but this classification into English, French, and German is unreliable and unscientific. It is said that Merck's aconitine is thirty times as active as Friedlander's, whilst Petit's is eight times as active as Merck's. This is a matter of some importance, for the substitution of one kind for another

might give rise to serious results. See *British Medical Journal*, April 15th, 1882.

For symptoms and treatment, see *Aconite*.

Alcohol.

How taken.—Usually for a wager or from bravado. Vapor of alcohol may cause death. "Absolute alcohol" is alcohol free from water; "proof spirit" is a mixture of spirit and water, containing 49.24 per cent. of alcohol, *i. e.*, half and half; every half per cent. of alcohol above this corresponds to one degree over-proof; "methylated spirit" is spirit mixed with ten per cent. of wood naphtha. Percentage of alcohol in some common alcoholic drinks:—Brandy 53, Rum 53, Whiskey 53—54, Gin 51, Port 20—25, Sherry 15—19, Burgundy 13—14, Claret 10—17, Hock 8—10, Strong ale 6, Stout 6, Porter 4, Small beer 1. For complete list, see table in Wood's *Therapeutics*, 3rd edition, p. 694.

Symptoms.—Usually appear at once, at all events within an hour. Confusion of thought, giddiness, inability to stand or walk, tottering gait, vacant expression, face flushed but may be pale, conjunctivæ congested, lips livid, breath alcoholic, skin covered with sweat, pupils dilated and fixed, but may be contracted, convulsions, stupor, coma, and death. Remission of symptoms not uncommon, with death quite suddenly some hours, or even days, after apparent recovery.

Diagnosis.—Often difficult. Most likely to be confounded with apoplexy, concussion of brain, or opium poisoning. History of case and examination of head for marks of violence may help you. Odor of breath

and of contents of stomach also a guide. In poisoning by alcohol face usually flushed, and pupils dilated; in opium poisoning face usually pale, and pupils contracted, but to this many exceptions. Excitement would be in favor of alcohol; remissions rare in opium poisoning. Not at all uncommon to find concussion or even fracture of the skull in conjunction with poisoning by alcohol. Laudanum frequently taken in porter or stout. If in doubt act on supposition that you are dealing with a case of serious injury. Hesitate before sending away a man who is intoxicated; "drunk or dying" is a difficult problem.

Fatal Dose.—Adult; death from half a pint of gin, also from two bottles of port. Recovery from quart of gin; also from quart of whiskey; from two bottles of port; from pint and a half of mixed gin and brandy. Child; death from half a pint of gin, from quartern of rum, and from two ounces of gin. Recovery from three ounces of rum.

Treatment.—1. STOMACH-PUMP or EMETIC of apomorphine (5 minims of the 1 in 50 solution hypodermically), or of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (two tablespoonfuls in water).

2. If patient insensible ROUSE HIM in every way, make him walk about, flap him with wet end of towel, shout at him, pinch him, and apply BATTERY (interrupted current) to legs. Massage.

3. COFFEE. Give him hot strong coffee (a pint) by mouth or enema.

4. The COLD DOUCHE, a jug of water being steadily poured over the head from a height from time to time. The alternate hot and cold douche is useful.

5. Nitrite of Amyl. Inhalations of ammonia or nitrite of amyl.

In ordinary cases of drunkenness, such as are found in the casualty room of the hospital every Saturday night, a hypodermic injection of apomorphine with, if necessary, the cold douche should be tried.

Almonds, Essential Oil of—Oil of Bitter Almonds.

Contains from ten to fifteen per cent. of hydrocyanic acid; *i. e.*, from five to eight times as strong as the Prussic Acid of the Pharmacopœia.

Death from 17 drops; recovery after 4 drachms.

For symptoms and treatment, see Prussic Acid.

Almond Flavor—Spirits of Almonds—Essence of Peach Kernels.

Consists of one part of Essential Oil of Almonds and seven of spirits. About the same strength as Prussic Acid, and largely used by cooks for flavoring pastry, blanc mange, etc. Found in every kitchen.

Death from 30 drops; poisoning in a child from eating tapioca pudding flavored with it.

For symptoms and treatment, see Prussic Acid.

Ammonia—Liquor Ammoniæ—Spirits of Hartshorn.

How taken.—Mistaken for sal volatile. In liniments, *e.g.*, Linimentum Camphoræ Compositum and Linimentum Ammoniæ. Indiscriminate use in cases of fainting, especially when too strong a solution applied to the nose. The strong solution of ammonia—liquor ammoniæ fortior—is three times as strong as the solution of ammonia—liquor ammoniæ.

Symptoms.—Usually at once, burning pain in mouth, throat, chest and stomach; patient in great agony, lips and tongue swollen, red and glazed and covered with pieces of detached epithelium. Suffocative cough, violent dyspnœa, vomiting with copious discharge of salivary fluid mixed with blood. Face pale and anxious, eyes small, haggard and injected. Pulse slow, limbs cold. Irritation of larynx, lungs and air-passages; voice reduced to a whisper or even lost. Death at once, or not till some days after, from affection of throat and air-passages.

Merely inhaling vapor may cause violent dyspnœa, cough and irritation of the larynx.

Diagnosis.—Not difficult. Sudden onset of the symptoms, smell of ammonia in breath, white fumes with rod dipped in hydrochloric acid.

Fatal Dose.—Two drachms of the strong solution may prove fatal, half an ounce usually fatal, but recovery recorded after an ounce had been taken.

Treatment.—1. VINEGAR freely diluted with water. LEMON or ORANGE JUICE, given freely. ACETIC ACID or any other acid if diluted with large quantities of water. Toilet vinegar may be used. If power of swallowing lost, inhalation of acetic acid or vinegar from pocket-handkerchief.

2. DEMULCENT DRINKS such as white of egg and water, milk, barley water, arrowroot, etc., olive oil.

3. If much dyspnœa from œdema of the glottis it may be necessary to perform TRACHEOTOMY. Inhalation of chloroform may relieve spasm. Steam from bronchitis kettle or spray apparatus may be useful.

4. To ward off shock and relieve pain hypodermic

injection of morphine (5 minims of the 1 in 100 solution).

Aniline

Is ammonia with one atom of hydrogen replaced by one of the compound organic radical phenyl. When pure is a colorless liquid, but as usually met with has a reddish tinge. Burning taste and unpleasant odor. Largely used in preparation of dyes and coloring agents.

How taken.—Vapor inhaled in cleaning out a vat. Fumes inhaled from a broken carboy. Used for dyeing articles of clothing, such as socks, lining of gloves, etc., and may produce eczema and other skin affections.

Symptoms.—Giddiness, apparent intoxication, profuse sweating, the surface of the body remaining cold, face, lips and fingers of a deep blue color. Breathing gasping, smell of aniline in the breath.

Treatment.—Removal of cause, fresh air, stimulants, artificial respiration, bleeding or transfusion.

Antimony—Tartarated Antimony—Tartar Emetic.

Antimony wine contains two grains of tartar emetic to the ounce.

How taken.—Mistaken for Epsom salts, also for carbonate of sodium. Overdose when given for medicinal purposes, murder, secret poisoning. "Hooper's Specific" (also known as "Holt's"), a quack remedy for whooping-cough. External application in form of ointment (the strength of the Pharmacopœial ointment is one in five) may cause death.

Symptoms.—Metallic taste in mouth, nausea, inces-

sant vomiting, burning heat, and constriction or choking in the throat, difficulty in swallowing, soreness of mouth and throat, with peeling off of mucous membrane, pain in stomach, violent purging. May be thirst with increased flow of saliva. Cramps in arms and legs, coldness of surface with clammy perspiration, congestion of head and face, great depression, faintness, pulse very weak, respirations short and painful, collapse, death. Sometimes either purging or vomiting absent. Sometimes tetanic spasm and sometimes pustular rash on skin like small-pox.

Diagnosis.—May be mistaken for natural disease; *e. g.*, ulcer of stomach or cholera, or may be confounded with arsenic poisoning. Never suppression of urine as in poisoning by arsenic. With antimony, when only one large dose is taken, case proceeds either to death rapidly or recovery. Must be remembered that antimony is sometimes contaminated with arsenic, and this may make diagnosis more difficult. Testing urine and vomited matter for antimony would distinguish it from natural disease.

Fatal Dose.—Much depends on early occurrence of vomiting. In an adult from ten to twenty grains of tartar emetic would probably prove fatal—a smaller quantity if given in divided doses—but recovery is recorded after half an ounce had been taken. Three-quarters of a grain proved fatal to a child. Prognosis on the whole good, if treatment prompt.

Treatment.—1. In those rare cases where there is not vomiting, give an EMETIC of apomorphine (5 minims of the 1 in 50 solution hypodermically), mustard (a tablespoonful of the powder in water), sulphate of zinc (a scruple in water), or ipecacuanha

wine (an ounce in water). Copious draughts of tepid water to promote vomiting always useful.

2. Tannic or Gallic Acid. Give half a drachm of tannic or gallic acid in water, repeating it as often as rejected. Decoction of oak bark will do as well.

3. Tea or Coffee. Give large doses of strong tea or coffee.

4. Give white of egg, barley-water, arrow-root water or milk.

5. Stimulants. Give stimulants if much collapse.

6. Wrap the patient in warm blanket, and put hot water bottles to the feet.

7. Morphine. Give a hypodermic injection of gr. ½ of morphine when the acute symptoms have subsided.

Aqua Fortis.

See Nitric Acid.

Aqua Tofana.

A deadly poison made and sold by the iniquitous Tofana or Tophiania, who is supposed to have poisoned with it more than six hundred people, including two popes, Pius III. and Clement IV. The *Acquetta di Napoli* was probably a solution of arsenious acid of uncertain strength. The *Acquetta di Perugia* was prepared by rubbing white arsenic into the flesh of a pig, and collecting the liquid which drained from it. The *Aqua Tofana* was made in the same way, with the addition of the juice of the ivy-leaved broad flax (*Linaria cymbalaria*). From four to six drops were sufficient to destroy life, but it was asserted that the dose could be so proportioned as only to operate fatally within a certain time. The "aqua tofana" continued to be manufactured at Naples, and distrib-

uted through Italy for many years after the death of its originator. It was used by Hieronyma Spara, an old fortune-teller, who was the president of a society of young married women, whose diversion it was to poison their own and other women's husbands. Marie de Brinviller's poison was arsenic dissolved in *aqua cymbalaria*, which in itself is certainly not poisonous. Arsenic was undoubtedly the active principle of the *poudre de succession* or "inheritance powder" in which the two female poisoners, La Vigoreux and La Voison, carried on so large a traffic.

The modern method of poisoning by arsenic is well illustrated by the following cutting from a daily paper: "Experiments were then made by one of the prisoners, which resulted in the preparation of the arsenic in the following manner: A number of fly-papers were purchased, the price being, it is said, one shilling for sixteen, and these were placed on a soup plate, one by one, layer by layer, and as they were so placed, a small quantity of boiling water, just sufficient to thoroughly saturate the papers, was poured upon them. The papers were allowed to stand for a few hours, and were then taken out singly, each one being well squeezed, so as to extract all the moisture therefrom. The liquid remaining, which was almost colorless, but which probably contained from eight to twelve or even sixteen grains of arsenic, was poured into a bottle, and the mixture was then ready for its diabolical use."

Arsenic—Arsenious Acid—White Arsenic (Acute Poisoning).

How taken.—A common and popular poison. By

law not allowed to be sold in small quantities, unless colored with soot or indigo, but frequently evaded. Very little, if any taste, so may be administered in any article of food without difficulty. Fowler's solution—liquor arsenicalis—(1 in 100) is flavored with compound tincture of lavender. Cases of poisoning from grinding arsenic in the mills, also from vapor in copper smelting. A constituent of some vermin-killers and rat-pastes. Used in some "fly-killers," and may be washed out of them quite easily. Used as a "cleansing liquid" to take fur off boilers and coppers. Used for stuffing birds and animals. Given to horses to improve coat. Wheat often steeped in arsenical solution. Has been mixed with flour by mistake, and has been used to adulterate violet powder. Used to "destroy the nerve" in stopping teeth.

Symptoms.—Usually appear in from a quarter of an hour to an hour. Faintness, depression, burning pain in stomach, nausea, vomiting of brown matter mixed with mucus and streaked with blood. Vomited matter may be green from bile, black from admixture of soot, or blue from indigo. Purging, with straining, the matter often mixed with blood. Severe cramps in calves of legs. Sense of constriction, with dryness or heat in throat and often intense thirst. Pulse small, frequent, irregular, may be imperceptible. Breathing painful from tenderness of abdomen. Skin cold and clammy. Collapse and death. May be a little tetanus, or may be salivation or retention of urine and a rash—eczema arsenicale—may appear on skin. Symptoms usually continuous, but may be remissions or even intermissions, and then death.

Fatal Dose.—From two to three grains usually fatal,

but recovery probable after one grain. In exceptional cases, recovery after very large doses, especially if taken on a full stomach, and rejected by early and copious vomiting.

Treatment.—1. STOMACH-PUMP or EMETIC of apomorphine (hypodermic injection of five minims of the officinal solution), or mustard (a tablespoonful of the powder in water), or sulphate of zinc (a scruple in water). To be followed by large draughts of hot, greasy water, or salt and water to wash out stomach. Most important that the whole of the poison should be rejected.

2. DIALYSED IRON. Give freshly prepared sesquioxide of iron, made by precipitating tincture of perchloride of iron with carbonate of sodium, and filtering through a handkerchief. It should be given in hot water, and in unlimited quantities, or give DIALYSED IRON in ounce doses repeatedly.

3. Give MAGNESIA in unlimited quantities, if above not at hand.

4. Give CASTOR-OIL, or common oil, or equal parts of common oil and lime-water, frequently and in large doses.

5. STIMULANTS freely, if much prostration.

6. MUCILAGINOUS DRINKS. Such as white of egg, barley-water, linseed-tea.

7. WARMTH. Hot blankets, hot bottles to extremities, friction with warm hand.

8. MORPHINE. When the more acute symptoms have subsided, linseed-meal poultices to abdomen, and a hypodermic injection of half a grain of morphine.

ARSENIC (CHRONIC POISONING).

"It is an unquestionable fact that the national

health is suffering from the use of arsenic and other poisons in the manufacture of domestic fabrics, to an extent not yet fully appreciated by the public." Carr, *Our Domestic Poisons.*

How taken.—Wall papers often contain arsenic. Not confined to green papers. Used in a great variety of colors, even in French white. Fact of a paper being marked "non-arsenical" is no proof that it is free from arsenic. Common not only in wall papers but in candles, carpets, advertisement cards, playing cards, wrappers for sweets, ornaments for children's toys, India rubber balls, dolls, japanned goods, Venetian blinds, floor cloths, book-bindings, etc. See report by Lauder Brunton, Stevenson and others, *B. M. J.*, June 23d, 1883. Artificial florists frequently suffer.

Symptoms.—Eyelids puffy, smarting and redness of the eyes. Thirst and dryness of the mouth, and redness of lining membrane of the nose. Loss of appetite, sensation of weight or soreness at the pit of the stomach. Skin dry and dirty-looking, often covered with scales or sore patches. Aching pains in limbs and joints. Sleep broken or disturbed by dreams, voice rough and harsh. Nausea, vomiting and diarrhœa, motions being slimy and containing blood. Cough with perhaps spitting of blood, great loss of flesh and general debility.

Treatment.—Removal of cause. Change of air and scene. Tonics.

Arum

See Lords and Ladies.

Atropina or Atropine.

The active principle of Belladonna. Also found in Datura Stramonium.

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How taken.—Eye-drops taken by mistake. Overdose given hypodermically for relief of sciatica. Murder. Death from use of atropine ointment to a blistered surface. Strength of liquor atropinæ sulphatis 1 in 100. Unguentum atropinæ, eight grains to the ounce.

Symptoms.—See BELLADONNA.

Fatal Dose.—Death from two grains, recovery from one grain, also from a grain and a half. Recovery of a child aged four from half a grain. Prognosis in children good.

Treatment.—1. STOMACH-PUMP or EMETIC of apomorphine (5 minims of the 1 in 50 solution hypodermically), or of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (two tablespoonfuls in water). The stomach may be washed out freely with tea or tannic acid.

2. STIMULANTS such as brandy, sal volatile, or chloric ether.

3. COFFEE. An enema of a pint of hot strong coffee.

4. Mustard to the calves of the legs, hot water bottles to the feet, rousing by flicking with a wet towel, alternate hot and cold douche, interrupted current to limbs, etc. Massage.

5. PILOCARPINE. Hypodermic injection of half a grain of pilocarpine (10 minims of the 1 in 20 solution), to be repeated frequently if necessary, or two drachms of tincture of jaborandi by mouth or rectum.

6. ARTIFICIAL RESPIRATION to be maintained for at least two hours if necessary. Use the catheter if retention.

Barium or Baryta.

How taken.—Chloride mistaken for Epsom salts, nitrate mistaken for sulphur. Chloride, nitrate, carbonate and acetate all poisonous. Heart remedy allied in action to digitalis.

Symptoms.—Pain in stomach and bowels, purging, vomiting, face anxious, pulse feeble, breathing short and labored. May be giddiness, cramp, paralysis, convulsion. Collapse, death.

Fatal Dose.—Death from teaspoonful of chloride and from drachm of carbonate, but much smaller quantity would probably prove fatal.

Treatment.—1. Stomach-pump or Emetic of sulphate of zinc (half a drachm in water), or of mustard (a tablespoonful of the powder in water), or of ipecacuanha wine (two tablespoonfuls in water). Apomorphine might be used as an emetic.

2. Sulphate of sodium (Glauber's salt), in ounce doses in water or milk; sulphate of magnesium (Epsom salts) in ounce doses; or alum in drachm doses. Dilute sulphuric acid in half drachm doses may be added to these draughts or may be given alone, freely diluted with water. Sulphate of sodium is probably a true physiological antidote.

3. Wrap patient in warm blankets; hot water bottles or bricks to feet. Stimulants freely if collapse. Hypodermic injection of morphine if much pain after subsidence of acute symptoms.

Battle's Vermin-Killer.

This is said to contain twenty-three per cent. of strychnine, mixed with sugar, flour, or Prussian blue. A fertile source of poisoning. For treatment, see Strychnine.

Battley's Solution—Liquor Sedativus.

A well-known preparation of opium. Is about fifty per cent. stronger than laudanum. For treatment, see Opium.

Bee-Stings.

1. Extract the sting if possible.

2. Apply ammonia, sal volatile, carbonate of sodium, carbonate of potassium, washing soda, or any other alkaline solution. A raw onion is a popular remedy.

3. Should this fail, try carbolic acid lotion, a drachm to eight ounces, or carbolized oil (1 in 20).

4. Lint soaked in chloroform, and oil of pennyroyal are good remedies.

5. Stimulants should be given freely, if signs of collapse. Brandy, whiskey, champagne.

Belladonna—Deadly Nightshade—Dwale—Atropa Belladonna.

Grows in many parts of Britain on calcareous soil, but is scarce. Generally found in shady lanes and under hedges, in neighborhood of villages and ancient ruins. Rarely met with near London. Berries size of a small cherry, deep central furrow, and when ripe of a shiny black color.

How taken.—Berries eaten by children; in one case were baked in a pie. Infusion of leaves taken by mistake. Extract substituted for extract of hyoscyamus in pills, also mistaken for extract of taraxacum and for confection of senna. Liniment taken by mistake. Poisonous symptoms from application of plaster.

Symptoms.—Heat and dryness of mouth and throat, with suppression of saliva, difficulty in swallowing, and great thirst. Face flushed, eyes prominent and sparkling, indistinct or double vision, pupils widely dilated and insensible to light. Great excitement, noisy delirium, patient often thinking that he has to start on a journey. Muscular power weakened, gait unsteady and staggering. Frequent desire to pass water, with inability to do so. Skin dry, with perhaps a rash like scarlet fever. Deep sleep, recovery.

Diagnosis.—May be confounded with poisoning by stramonium or hyoscyamus, but of no consequence, as treatment the same. Has been mistaken for delirium tremens or acute mania.

Fatal Dose.—Death from drachm of liniment; recovery from half an ounce. Recovery after three drachms of extract. Recovery after eating fifty berries. Prognosis good, majority of cases recover. Children will take almost as much as adults.

Treatment.—1. STOMACH-PUMP, or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (two tablespoonfuls in water). Apomorphine may be used as an emetic.

2. STIMULANTS, such as brandy, sal volatile, or chloric ether.

3. COFFEE. An enema of a pint of hot, strong coffee.

4. Mustard to the calves of the legs, hot-water bottles to the feet, rousing by flicking with a wet towel, alternate hot and cold douche, interrupted current to limbs, etc.

5. PILOCARPINE. Hypodermic injection of half a

grain of pilocarpine (ten minims of the 1 in 20 solution), to be repeated if necessary, or two drachms of tincture of jaborandi, by mouth or rectum. Pilocarpine is a much less powerful alkaloid than atropine. An overdose is not likely to do much harm.

6. ARTIFICIAL RESPIRATION, to be maintained for two hours if necessary. Catheter to be used if retention.

7. In a bad case, or in the absence of pilocarpine, a hypodermic injection of morphine, or of physostigmine would be justifiable. Atropine antagonizes physostigmine, but the exact value of physostigmine in poisoning by atropine has yet to be determined.

BELLADONNA AND ACONITE.

Symptoms.—See ACONITE AND BELLADONNA.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (two tablespoonfuls in water), or a hypodermic injection of apomorphine.

2. STIMULANTS freely, brandy, spirits of chloroform, and sal volatile. If not retained, dilute and inject into rectum.

3. WARMTH to extremities by hot towels or hot-water bottles. Friction with the warm hand. Mustard leaf, or mustard poultice, over the heart.

4. Keep the patient in the RECUMBENT POSITION.

5. NITRITE OF AMYL. Give inhalations of nitrite of amyl.

6. ARTIFICIAL RESPIRATION to be maintained for two hours if necessary.

Belladonna and Opium.

How taken.—Suicide; liniment by mistake.

Symptoms.—Will depend on relative proportion of drugs taken. As they are to some extent antagonistic, symptoms may be slight. Said that gr. $\frac{1}{20}$ atropine will antagonize gr. i. morphine. Probably more danger from the opium than the belladonna, especially in children.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains of the powder in water). Apomorphine (5 minims of the 1 in 50 solution hypodermically) may be used as an emetic.

2. Coffee. An enema of a pint of hot strong coffee.

3. The patient should be kept awake. Flicking with a wet towel, and mustard to the calves of the legs and over the region of the heart, will be useful. Alternate hot and cold douche over head and chest.

4. Artificial Respiration may be resorted to if necessary.

Benzin—Benzol.

How taken.—Never intentionally. Vapor inhaled by accident in gas-tar distillery. Taken in mistake for *vodka*.

Symptoms.—Active poison. Vapor acts as a narcotic, and also produces certain nervous symptoms. Noises in the head, convulsive trembling, twitchings of muscles, convulsions, difficulty in breathing. Taken internally may give rise to dilated pupils, trismus, irregular stertorous breathing, coldness of

the extremities, paraplegia, distention of the abdomen and death.

Fatal Dose.—Death in seventeen hours from taking three drachms.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). If vapor inhaled stomach-pump or emetic useless.

2. STIMULANTS. Such as brandy, liquor ammoniæ (half a drachm in plenty of water), sal volatile (a drachm in water), or chloric ether (half a drachm in water), frequently repeated. If patient cannot swallow, to be given as enema, or brandy may be injected under the skin. Inhalations of ammonia on a pocket-handkerchief.

3. DOUCHE. Alternate hot and cold douche, the water being poured over the chest, from a height.

4. ATROPINE. Hypodermic injection of gr. $\frac{1}{50}$ of atropine (two minims of the B.P. solution), or thirty drops of tincture of belladonna given by mouth in water.

5. ARTIFICIAL RESPIRATION to be maintained till the patient has recovered or the heart has ceased beating.

6. BATTERY. Mild interrupted current to chest-walls and over region of the heart.

BICHLORIDE OF METHYLENE.

Sometimes used as an anæsthetic. Probably not a simple substance. Physiological effects similar to those of a mixture of chloroform, ether and alcohol. Better to make a mixture at the time in the following proportions:

A. Alcohol, 1 part.
C. Chloroform, 2 parts.
E. Ether, 3 parts.

A.C.E.

Produces anæsthesia quickly, but not very safe. Probably a better plan would be to put patient under chloroform and then give ether. If dangerous symptoms from Bichloride of Methylene treat as for CHLOROFORM.

BICHROMATE OF POTASSIUM.

How taken.—Accident; suicide. Extensively used in the arts, especially by dyers.

Symptoms.—Powerful irritant poison. Acute pain in abdomen. Constant and violent vomiting and purging. Pupils dilated. Violent cramps in legs. General depression, often very great, pulse weak, skin covered with clammy perspiration. Urine suppressed or passed in small quantity.—*Lancet*, Sept. 22d, 1883.

Workmen engaged in the manufactory suffer from bitter, nauseous taste in mouth, irritation of mucous membrane of nose, incessant sneezing, increased secretion of tears, and even severe inflammation of eyes. Chronic sores on hands, feet, and shoulders. Attacks of conjunctivitis not uncommon. Acts as a caustic when there is the slightest abrasion of the skin. May in time lead to destruction of septum of nose.

Fatal Dose.—Two drachms fatal in four hours, but recovery from half an ounce.—*Lancet*, January 31st, 1880. Severe symptoms from merely tasting a solution of it.

Treatment. — 1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains in water).

2. CARBONATE OF MAGNESIUM, or CHALK in milk, or white of egg in milk or water.

3. BARLEY WATER, arrowroot, or thick gruel.

4. Warmth to extremities, stimulants freely, if much collapse, hypodermic injection of morphine to allay pain.

BISMUTH.

Nitrate used as a face powder, under name of "Pearl White." Dose of two drachms has proved fatal. Any poisonous effects that may occur are probably due to the presence of arsenic as an impurity. For treatment, see ARSENIC.

BITTER ALMOND WATER.

Twenty drops might give rise to dangerous symptoms. For treatment, see PRUSSIC ACID.

BLACK DROP.

An old-fashioned preparation of opium. Said to be three or four times as strong as the tincture. For treatment, see OPIUM.

BLUE VITRIOL, BLUE STONE, OR BLUE COPPERAS.

This is sulphate of copper. For treatment, see COPPER.

BROMINE.

In a recent work on therapeutics bromine is recommended in *eighty-grain* doses. Should this mode of treatment be generally adopted, the office of coroner will be no sinecure.

Brucine.

An alkaloid found both in nux vomica (*Strychnos Nux Vomica*) and St. Ignatius bean (*Strychnos Ignatia*). The treatment is the same as for Strychnine.

Bryony. (Bryonia Dioica.)

Grows wild in the hedges all over the country. Red berries attractive in appearance, and sometimes eaten by children.

Symptoms.—Giddiness, delirium, vomiting, diarrhœa with watery motions, dilated pupils, coma.

Treatment.—1. Emetic of mustard, salt, sulphate of zinc, or ipecacuanha.

2. Stimulants, brandy, chloric ether, and sal volatile freely.

Burnett's Fluid.

This is a solution of impure chloride of zinc. Used as a disinfectant. Mistaken for fluid magnesia, for Friedrichshall water, also for pale ale. Death from a mouthful, recovery from half an ounce.

Butler's Vermin-Killer.

It is said to contain about five per cent. of strychnine, mixed with flour and soot, or sometimes Prussian blue. Sixpenny packet weighs about a drachm, and contains from two to three grains of strychnine. For treatment, see Strychnine.

Caffeine.

There are three salts in common use, the citrate, hydrobromate and valerianate. Case of poisoning by a drachm of the citrate given in mistake for Bishop's effervescing salt.

Symptoms.—Burning pain in throat and gullet, giddiness, faintness, nausea, numbness, pain and tenderness in abdomen, great thirst, dry tongue. Tremors of extremities, diuresis, weak pulse, cold skin, collapse. Recovery under treatment.

Treatment.—1. EMETIC of mustard, carbonate of ammonium, ipecacuanha, or salt.

2. STIMULANTS. To be given freely. Brandy half a pint or more, champagne, sal volatile, spirits of chloroform, etc. Friction with warm hand. Warmth to extremities. Massage.

3. MORPHINE AND ATROPINE. Hypodermic injection of morphine half a grain, with atropine one-sixteenth of a grain.

CALABAR BEAN—ORDEAL BEAN—PHYSOSTIGMA VENENOSUM.

For symptoms, see PHYSOSTIGMINE.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains in water). Apomorphine (5 minims of the 1 in 50 solution hypodermically) may be used as an emetic.

2. ATROPINE. A hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (2 minims of the 1 in 100 solution), or fifteen drops of tincture of belladonna, by mouth or rectum. To be repeated every quarter of an hour, or until the pupils dilate, or the pulse is quickened. "The exhibition of the antidote should be persevered with in repeated doses until the pupils are fully dilated and the pulse-rate increased, and probably also until the hypersecretion of bronchial mu-

cus, which greatly impedes respiration, is checked." (Fraser.)

3. CHLORAL. Should the above fail, give ten grains of chloral by mouth or rectum every quarter of an hour for an hour.

4. STRYCHNINE. In desperate cases, a hypodermic injection of gr. $\frac{1}{12}$ of nitrate of strychnine (4 minims of the 1 in 50 solution), or 20 minims of tincture of nux vomica, by mouth or rectum.

5. STIMULANTS freely—brandy, chloric ether, sal volatile.

6. ARTIFICIAL RESPIRATION.

CAMPHINE.

This is oil of turpentine purified by distillation with lime. For symptoms and treatment, see TURPENTINE.

CAMPHOR.

How taken.—Popular remedy for many complaints—in solution for cold in the head, in solid form as a vermifuge. Essence of camphor or Rubini's solution is a saturated solution in alcohol and is largely used in treatment of summer diarrhœa. Spirits of camphor 1 in 10. Camphorated oil or camphor liniment 1 in 5.

Symptoms.—Odor of breath, languor, giddiness, faintness, disturbance of vision, noises in the ears, delirium, convulsions, shrunk features, coldness of the surface, clamminess of the skin. Sometimes smarting and pain in urinary organs with desire to pass water. Pulse quick and weak, breathing difficult; but no pain, no purging, no vomiting. Re-

covery may be preceded by long sleep with copious sweating.

Fatal Dose. — Frequently gives rise to alarming symptoms, but rarely fatal. Recovery in different cases from 20, 25, 160, and 200 grains, but dangerous symptoms from even fifteen minims of the strong solution.

Treatment.—1. STOMACH-PUMP or EMETIC of apomorphine (5 minims of the 1 in 50 solution hypodermically), or of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains in water).

2. STIMULANTS freely—sal volatile or ether to inhale, or brandy injected under skin. If camphor taken in solid form, not wise to give spirits by mouth.

3. WARMTH to the extremities by hot blankets, hot-water bottles, etc. Rubbing with the warm hand, and with brandy. Massage.

4. DOUCHE. Alternate hot and cold douche to head and chest.

CANTHARIDES—SPANISH FLY—BLISTER BEETLE.

How taken.—To procure abortion. As an aphrodisiac. Given as a "joke." Powder mistaken for jalap, used instead of pepper. Death from use of ointment in mistake for sulphur ointment.

Symptoms. — Burning sensation in throat and stomach with pain and difficulty in swallowing. Vomiting of mucus mixed with blood—may contain shining particles of the powder. Diarrhœa, motions consisting of blood and slime. Salivation and swelling of the salivary glands. Incessant desire to pass water, but only a little blood, or albuminous urine

passed at each attempt (characteristic symptom). Peritonitis, high temperature, quick pulse, headache, loss of sensibility, convulsions, death.

Fatal Dose.—Recovery from two drachms of the powder, death from twenty-four grains, also from an ounce. Recovery from six drachms of the tincture, in one case recovery from an ounce, in another death. The tincture varies much in activity. Sometimes the insects are exhausted with spirit, and then dried and sold again.

Treatment.—1. Stomach-pump if seen at once and condition of throat will admit of its use. If not, Emetic of apomorphine (5 minims of the 1 in 50 solution hypodermically), or of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains or more).

2. Demulcent Drinks. Barley-water, thick gum and water, or white of egg and water, gruel, linseed tea, not oil in any form.

3. Morphine. If much pain, thirty minims of laudanum by mouth or half a grain of morphine hypodermically. If much diarrhœa and straining a morphine suppository—half a grain—might be preferred.

4. Hot baths or linseed-meal poultices to the abdomen, when the more acute symptoms have subsided.

Carbolic Acid—Phenic Acid—Phenol.

How taken.—Favorite of late for suicidal purposes. Lotion administered by mistake for medicine. Too strong an injection ordered. Disinfectant. Antiseptic dressing. Spray. Rubbed into the skin to cure

itch and other skin diseases. Carbolic oil given instead of castor oil—recent case at Guy's. Death from application in cancer of the womb. Injected into rectum to cure worms. *Lancet*, May 19th, 1883.

See "A Summary of Fifty-six Cases of Poisoning by Carbolic Acid," by Edward T. Reichert, M.D., reprinted from *American Journal of the Medical Sciences*, October, 1881.

Symptoms.—Intense burning sensation extending from mouth to stomach, coming on at once, even in act of swallowing, lips and mouth white and hardened. Skin cold and clammy; lips, eyelids, and ears livid. Pupils contracted. Urine dark in color, even black, or may be suppressed. Insensibility, coma, stertorous breathing, complete abolition of reflex movements, respiration hurried and shallow, death. May be great improvement with return of consciousness, and then after some hours death suddenly from collapse.

Fatal Dose.—Minimum fatal dose one drachm, but sometimes recovery from taking this quantity. Half an ounce almost invariably fatal. Prognosis grave.

Treatment.—1. EPSOM SALTS. Give half an ounce of sulphate of magnesium (EPSOM SALTS), or half an ounce of sulphate of sodium (GLAUBER'S SALTS) in half a pint or more of warm water. Soluble sulphates form sulphocarbolates in the blood which are harmless.

2. STOMACH-PUMP or EMETIC of apomorphine (hypodermic injection of 5 minims of 1 in 50 solution), or of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha.

3. Wash out the stomach with Epsom Salts or Glauber's Salts or Soda, or with Saccharated Lime dissolved in large quantities of tepid water, until the smell of the acid is no longer perceived. Leave the stomach full of the solution so that it may be absorbed.

4. White of Egg in water in large quantities.

5. Give an ounce of Castor Oil or half a tumblerful of olive oil.

6. Give Stimulants freely, hot brandy and water, chloric ether, and sal volatile.

7. Apply warmth to the extremities. Friction with the warm hand. Interrupted Current to the extremities.

8. Atropine. Hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (2 minims of 1 in 100 solution).

9. Inhalations of Nitrite of Amyl.

10. Bleeding or Transfusion might be resorted to in desperate cases.

Carbonic Acid Gas—Choke-Damp—After-Damp.

How taken.—May be accidentally inhaled in many ways, *e.g.*, sleeping in an overcrowded room; cleaning out vats in which fermentation has been going on; sleeping over a lime-kiln; gas following explosions in coal-mines; in wells or cellars where gas has accumulated from decomposing substances; travelling by underground railway. Use of charcoal stoves, or even gas stove, if adequate ventilation not provided.

Symptoms.—Irritation of throat, weight and pains in the head, drowsiness, giddiness, singing in the ears, gradual loss of muscular power until the patient falls insensible, his head bowed on chest.

Lividity of face and body generally, violent action of heart, hurried respiration, coma, death.

Fatal Dose.—Difficult to say, but probably from 10 to 15 per cent. of carbonic acid in the atmosphere would prove fatal. This percentage will usually extinguish a taper. Even 2 per cent. would produce serious symptoms if inhaled for long.

Treatment.—1. Plenty of FRESH AIR, open all doors and windows.

2. ARTIFICIAL RESPIRATION to be kept up steadily and unceasingly.

3. AMMONIA to the nostrils. FRICTION and warmth to the extremities. Interrupted current to the limbs.

4. STIMULANTS in moderate quantities. Injection of a pint of hot strong coffee into the rectum.

5. The inhalation of OXYGEN (about two quarts), if obtainable.

6. COLD DOUCHE to head and chest.

7. BLEEDING or TRANSFUSION might do good.

8. The CATHETER may have to be used in prolonged cases.

CARBONIC OXIDE GAS.

Much more active than carbonic acid gas. So deadly that it kills almost at once. Probably 2 per cent. in the atmosphere would prove fatal. Probably occurs with carbonic acid gas under the circumstances already enumerated. The treatment is as above for CARBONIC ACID GAS.

CAUSTIC POTASH—CAUSTIC SODA.

For symptoms, see POTASH.

Treatment.—1. Give large draughts of water mixed

with VINEGAR, ACETIC ACID, CITRIC ACID, LEMON-JUICE, or orange-juice.

2. DEMULCENT DRINKS, such as white of egg (uncooked) and water, milk, gruel, barley-water, etc.

3. OLIVE-OIL freely.

CESSPOOL GAS—CESSPOOL EMANATIONS.

For treatment, etc., see SEWER GAS.

CHARCOAL FUMES.

For treatment, see CARBONIC ACID GAS.

CHLORAL—CHLORAL HYDRATE.

How taken.—Popular sedative and narcotic. Taken by all classes of society to induce sleep, and as a "restorative." Deaths by injudicious use very frequent. Not uncommonly used for suicidal purposes. Strength of syrup, 10 grains in the drachm. Syrup sold under guise of patent medicine without restriction. Wood says: "Chloral, if given rapidly, accumulates in the system, and finally kills, very possibly by a sudden paralysis of the heart." He thinks that 20 grains is the highest safe dose of the remedy; this amount should not be repeated oftener than once an hour, and after 60 grains have been taken not for some hours except in urgent cases.

Symptoms.—Deep sleep, loss of muscular power, diminished or abolished reflex action and sensibility. Face livid and bloated, sometimes flushed, pulse either slow or very weak and quick. Diminished frequency of respiration, which is often sighing or stertorous. Pupils contracted during sleep, but on waking they dilate. Extremities and surface generally very cold, temperature falling as low as 91° F.

May be an eruption on skin like urticaria if case prolonged. Death by arrest of respiration or paralysis of the heart. In one case after recovery the patient became idiotic.

Fatal Dose.—Bad symptoms from 10 grains. Death from 30 grains, recovery from 180 grains, also in one case from 460 grains. Recovery from four ounces of syrup.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains in water). Apomorphine may be used as an emetic, a hypodermic injection of 5 minims of the 1 in 50 solution, repeated if necessary.

2. Keep up the temperature by HOT BLANKETS, frequently renewed, HOT WATER BOTTLES, hot bricks, DRY FRICTION, etc. MASSAGE of great value and importance.

3. Prevent patient from sleeping, by ROUSING him in every way, by speaking to him sharply, flapping face and chest with wet towel, pinching, mustard to calves of legs, battery to limbs, etc.

4. Injection of a pint of hot strong COFFEE into rectum.

5. In bad cases, hypodermic injection of gr. $\frac{1}{25}$ of nitrate of STRYCHNINE (2 minims of a 1 in 50 solution), or fifteen minims of tincture of nux vomica by mouth or rectum. It may be repeated if necessary, and improvement in the pulse and temperature is to be taken as an indication that it is doing good.

6. Inhalations of NITRITE OF AMYL from time to time.

7. ARTIFICIAL RESPIRATION on slightest sign of failure. To be continued for some hours if necessary.

CHLORAL AND MORPHINE—CHLORAL AND OPIUM.

An unfavorable combination, and one of not infrequent occurrence. It is difficult to keep the patient awake, and at the same time to keep him warm. The condition of the heart has also to be taken into consideration, and it would not be judicious to walk the patient about as in ordinary opium poisoning.

Treatment.—1. STOMACH-PUMP or EMETIC of apomorphine (one of the tabloids or 5 minims of the 1 in 50 solution injected under the skin and repeated if necessary), or of mustard (a tablespoonful or more of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains in water). The stomach to be thoroughly washed out, coffee being used for the purpose if thought desirable.

2. Rouse the patient by flapping him with a wet towel, etc. AMMONIA to the nostrils. Cold douche to the head and chest, followed by warm DOUCHE.

3. Patient to be kept warm by hot blankets frequently renewed, hot-water bottles, hot bricks, dry friction, etc.

4. Give a hypodermic injection of gr. $\frac{1}{25}$ of ATROPINE (4 minims of a 1 in 100 solution), repeating it in a quarter of an hour if necessary.

5. STRYCHNINE. If the symptoms of chloral poisoning predominate, give a hypodermic injection of gr. $\frac{1}{25}$ of nitrate of strychnine (2 minims of 1 in 50 solution), repeating it in half an hour if necessary; or fifteen minims of tincture of nux vomica may be given by mouth or rectum.

6. COFFEE. Give hot strong coffee, or inject it into the bowel.

7. ARTIFICIAL RESPIRATION to be kept up for some hours.

Chloride of Zinc.

For treatment, see Zinc.

Chlorine Gas (Inhaled).

Used as a disinfectant and bleaching agent.

Symptoms.—Irritation of throat, cough, tightness of the chest, difficulty in breathing, inability to swallow.

Treatment.—1. Plenty of fresh air.

2. Inhalations of Steam.

3. Inhalations of very dilute Ammonia or Sulphuretted Hydrogen.

4. Inhalation of Chloroform or Ether to ease the cough.

Chlorodyne

Is said to consist of chloroform, muriate of morphine (probably about 2½ grains to the ounce), rectified ether, oil of peppermint, prussic acid, gum acacia and treacle. The tincture of chloroform and morphine of the British Pharmacopœia is an imitation of it, and contains in every ten minims 1¼ minims of chloroform and gr. $\frac{1}{48}$ of hydrochlorate of morphine. For treatment, see Opium.

Fatal Dose.—An ounce has proved fatal.

Chloroform (Inhalation).

Symptoms.—The symptoms are too well known to need enumeration.

Treatment.—1. Pull the tongue out with the forceps, and see that the mouth is clear. See that there is no obstruction by artificial teeth.

2. Loosen everything about the chest; flap the face and chest with the end of a wet towel. Open doors

and windows so as to have plenty of fresh air. Alternate cold and warm DOUCHE to chest and head.

3. ARTIFICIAL RESPIRATION to be commenced AT ONCE—not faster than twenty in the minute.

4. Let the head be at a lower level than the rest of the body. Completely invert the patient for a moment, letting the head rest on the ground.

5. Inhalations of NITRITE OF AMYL.

6. BATTERY. Interrupted current, one pole at pit of the stomach, and the other over the larynx. To be used cautiously and for a short time only. Strong currents are to be avoided.

7. In apparently hopeless cases two or three violent blows on the chest delivered in quick succession may restore the heart's action.

8. ATROPINE. Atropine has been recommended on theoretical grounds, but it is not likely to do much good after serious symptoms have set in; it might be tried, however, 4 minims of 1 in 100 solution hypodermically.

CHLOROFORM (SWALLOWED).

How taken.—Suicide generally, sometimes by mistake.

Symptoms.—Smell in breath, anxious countenance, burning pain in throat, stomach and over abdomen, coldness of extremities, staggering gait. May be vomiting, insensibility deepening into coma with complete anæsthesia, pupils dilated, breathing stertorous, skin cold, pulse imperceptible.

Fatal Dose.—Death from one ounce, but several cases of recovery after taking two ounces. See cases reported by Llewellyn Eliot, New York *Medical Record*, July 11th, 1885.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha (twenty grains in water). Apomorphine may be used as an emetic—5 minims of the 1 in 50 solution hypodermically.

2. Give large draughts of water containing CARBONATE OF SODIUM in solution.

3. Rouse the patient in every way possible. Flicking with wet towel. MASSAGE. Mustard to calves of legs. MUSTARD leaf over the heart. Olive oil to relieve the burning pain.

4. Injection of a pint of hot strong COFFEE into the rectum.

5. Inhalations of NITRITE OF AMYL frequently.

6. Do not leave the patient for some hours after, for there may be a relapse.

CHROMIC ACID.

1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (a tablespoonful in water).

2. CARBONATE OF MAGNESIUM, or chalk in milk, or white of egg in milk, or in water.

3. DEMULCENT DRINKS. Barley-water, linseed tea, arrowroot gruel, etc.

COAL GAS.

How taken.—May be inhaled in various ways, by workmen at gas-works, by gas-fitters, as the result of leaky pipes and taps, and perhaps, by gas not being properly turned off at night and gradually filling the room or house when every one is asleep. Its toxicity

is probably in great part due to the carbonic oxide it contains.

Symptoms.—Headache and giddiness, loss of memory and muscular power, unconsciousness, pupils insensible and dilated, breathing labored, convulsions, coma or asphyxia, death. Smell of gas in the room, and in the patient's breath.

Treatment.—1. Plenty of FRESH AIR. Open all doors and windows.

2. ARTIFICIAL RESPIRATION to be kept up steadily and incessantly.

3. AMMONIA to the nostrils. FRICTION and warmth to the extremities. MUSTARD leaf or mustard poultice to calves of legs. INTERRUPTED CURRENT to extremities. Mustard over the heart.

4. STIMULANTS in moderate quantities by mouth or rectum. Enema of a pint of hot strong COFFEE.

5. The inhalation of OXYGEN (four or five quarts) if obtainable.

6. Alternate cold and warm DOUCHE to head and chest.

7. BLEEDING might do good.

8. In prolonged cases it may be necessary to employ the CATHETER.

COCCULUS INDICUS—ANAMIRTA COCCULUS.
Indian Berry—Levant Nut.

See PICROTOXINE.

COLCHICUM—MEADOW SAFFRON—AUTUMN CROCUS —COLCHICUM AUTUMNALE.

How taken.—All parts of the plant poisonous. Wine taken by mistake for sherry and other wines,

once mistaken for quinine wine. Given for criminal purposes. Case of poisoning by Blair's Gout Pills, *Lancet*, vol. i., 1881, p. 368.

Symptoms.—Burning pain in stomach, persistent vomiting and purging, the stools being mixed with blood. Irritation of throat and intense thirst. Great prostration, pain in head, pinched face, profuse perspiration, dilated pupils, small weak or intermittent quick pulse, muscular twitchings, pain in extremities or perhaps in joints. Mental faculties may be unimpaired, or there may be delirium. Sometimes suppression of urine. Symptoms sometimes not unlike malignant cholera.

Fatal Dose.—Of the wine, death from two ounces, from an ounce and a half, and from an ounce. Recovery from one ounce. Of the tincture, death from an ounce and a half, recovery from one ounce.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine (an ounce in water).

2. Give TANNIC or GALLIC ACID in half drachm doses, frequently repeated, or strong tea.

3. DEMULCENT DRINKS, such as white of egg and water, barley-water, arrowroot, etc.

4. STIMULANTS, if signs of collapse, brandy, chloric ether, sal volatile.

5. A hypodermic injection of half a grain of MORPHINE.

COLOCYNTH—BITTER APPLE.

How taken.—Powder extensively employed in London for procuring abortion, "as much as will go on a threepenny bit."

Symptoms.—Persistent vomiting, purging, the motions containing mucus and perhaps blood, exhaustion, cold extremities, weak pulse, collapse, death.

Fatal Dose.—A teaspoonful and a half has proved fatal.

Treatment.—1. Stomach-pump or Emetic of mustard and water, sulphate of zinc or ipecacuanha.

2. Camphor. Ten drops of spirits of camphor, or three drops of essence of camphor on sugar or in milk every quarter of an hour.

3. Laudanum. Thirty minims of laudanum in a little brandy and water, or if patient unable to swallow to be mixed with two ounces of starch and water and injected into the bowel.

4. Stimulants freely—hot brandy and water, chloric ether, sal volatile, etc.

5. Demulcent Drinks, white of egg and water, thick gum and water, barley-water, arrowroot, etc.

6. Warmth. Patient to be kept warm by hot blankets, hot-water bottles, hot bricks to feet, friction with warm hand, etc. Hot linseed meal poultices to the abdomen.

Conium—Hemlock—Common or Spotted Hemlock.

Common in all our hedges, easily recognized by its mousey odor.

How taken.—Mistaken for parsley, eaten in salad and in soup. In one case children killed by blowing a whistle made from the twigs.

Symptoms.—Weakness of the legs, faltering gait, staggering as if intoxicated, loss of power in the arms, loss of all voluntary power, pupils dilated and fixed,

loss of sight, inability to swallow, paralysis of muscles of respiration, asphyxia, death.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or sulphate of zinc (a scruple in water), or ipecacuanha.

2. TANNIC ACID or GALLIC ACID, or decoction of oak-bark, or strong tea in unlimited quantities, after which the stomach should be again emptied.

3. STIMULANTS, brandy, chloric ether, ammonia, etc.

4. WARMTH to the extremities by hot-water bottles, hand rubbing, etc.

5. ARTIFICIAL RESPIRATION, long continued.

6. The hypodermic injection of gr. $\frac{1}{50}$ of SULPHATE OF ATROPINE (2 minims of a 1 in 100 solution) may be tried.

CONVALLARIA MAJALIS—LILY OF THE VALLEY.

Used as a diuretic and remedy for certain forms of heart disease. Common preparations are the extract and fluid extract. They contain two active principles, "convallarin" and "convallamarin." Convallarin possesses purgative properties only, while convallamarin is a heart poison allied to digitalin, helleborin, and the upas principles. *British Medical Journal*, February 24th, 1883. Usually said to have no toxic action on man, but case reported, *Lancet*, October 27th, 1883, in which bad effects attributed to it. Treatment same as for DIGITALIS.

COPPER.

How taken.—Generally as the sulphate or bluestone, or as the subacetate or verdigris. By accident, for purpose of procuring abortion, suicide, murder.

Most cases of copper poisoning, however, are from use of copper vessels in cooking. Chronic poisoning may occur in many ways:—used in pickles, to give them a green color; to color sweets; lemon-juice kept in copper tanks; use of green wrappers for foods; use of inferior gold for artificial teeth; manufacture of artificial flowers; drugs kept in copper vessels; workers in copper or bronze. Not safe to use copper vessels for culinary purposes.

Symptoms.—Metallic taste in mouth, constriction in throat and gullet, griping and colicky pains in the abdomen, nausea and vomiting, purging with much straining, partial suppression of urine, jaundice. Hurried and difficult breathing, small quick pulse, great weakness, intense thirst, cold perspiration, coldness of limbs, headache, giddiness, coma, death.

Fatal Dose.—Death from one ounce of verdigris. Recovery from an ounce of sulphate, and also death.

Treatment.—1. Give milk and eggs freely.

2. STOMACH-PUMP or EMETIC of mustard (a tablespoonful) and water, or ipecacuanha. Large draughts of tepid water.

3. Give BARLEY-WATER, or arrowroot, or gruel.

4. Give hypodermic injection of gr. ½ of MORPHINE, or give twenty-five drops of laudanum by mouth.

5. Apply linseed meal POULTICES to abdomen.

CORROSIVE SUBLIMATE—PERCHLORIDE OF MERCURY.

Used to kill insects and preserve specimens. Also to preserve timber from dry rot. Has been dispensed in mistake for calomel (the subchloride). External

applications in the form of lotion or ointment may cause death. The liquor contains gr. ½ to the ounce.

Symptoms.—Lips and mouth white and swollen. Metallic taste in the mouth, sense of constriction in throat extending to stomach. Great pain in stomach. Nausea with vomiting of stringy masses of white mucus mixed with blood. Profuse purging, evacuations mucous in character and streaked with blood. Countenance may be swollen and flushed, or pale and anxious. Pulse small, frequent and irregular. Tongue white and shrivelled. Skin cold and clammy and respiration difficult. Suppression of urine; syncope; convulsions; death.

Fatal Dose.—Probably from 3 to 5 grains, but recovery from even an ounce when taken on a full stomach and copious vomiting promptly induced.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or ipecacuanha. Apomorphine may be used as an emetic.

2. WHITE OF EGG (unboiled), mixed with water, to be given in unlimited quantities. Flour and water, arrowroot, or gruel, if at hand. Barley-water.

3. STIMULANTS if much depression.

CRAYONS—COLORED CRAYONS—FRENCH CHALKS.

Many very poisonous. Often contain white lead colored with some vegetable substance. Some consist of Prussian blue mixed with Dutch pink. Some probably contain chromium. Arsenic common in cheaper kinds of artists' colors and crayons. Are sucked by children with avidity, and sometimes eaten by them in mistake for sweets. See *British Medical Journal*, May 6th and 13th, 1882.

Symptoms.—Vary with composition of the crayon and the quantity taken, but usually purging, vomiting, and intense thirst, with perhaps convulsions and death.

Treatment.—Much will depend on symptoms ; but safe to give an EMETIC of sulphate of zinc, or mustard and water, and to follow this by two or three tablespoonfuls of dialysed iron in water.

CREOSOTE.

Treatment as for CARBOLIC ACID.

CROTON OIL.

How taken.—Taken by mistake for castor-oil. Liniment taken by mistake. Bad effects even from inhaling dust from seeds.

Symptoms.—Intense pain in abdomen Vomiting, purging, the stools being watery in character. Pale face, pinched features, small thready pulse, moist skin, collapse, death.

Fatal Dose.—From 15 to 20 minims might prove fatal, but recovery from half a drachm or more.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha.

2. DEMULCENT DRINKS to be given freely. Barley-water, white of egg and water, gruel, arrowroot.

3. CAMPHOR. Three drops of the essence, or ten drops of the spirits, on sugar or in milk every ten minutes to the extent of five or six doses.

4. STIMULANTS freely, brandy, sal volatile, chloric ether.

5. A hypodermic injection of gr. ½ of MORPHINE,

or twenty minims of laudanum by mouth, to be repeated in an hour if necessary.

6. Linseed meal POULTICES to abdomen.

CURARI—WOORARA—URARI.

For origin and mode of preparation, see abstract of Schomburgk's paper in *London Medical Record*, 1880, p. 168. See also Woodman and Tidy, p. 326, and *Popular Encyclopædia*, vol. ii., p. 676.

Several roots and barks enter into its composition, *e. g.*, the bark of *Strychnos toxifera*, *Strychnos Schomburgkii*, and *Strychnos cogens*.

General symptoms quite unlike those of poisoning by strychnine, never any tetanus. Paralyses motor nerves and causes death by arresting respiratory movements.

Treatment.—1. ARTIFICIAL RESPIRATION to be kept up steadily until the poison is eliminated.

2. STIMULANTS freely; brandy, hot gin and water, sal volatile, chloric ether, etc.

3. If there be a surface wound, through which the poison has been introduced, apply a LIGATURE tightly above it, and wash the wound thoroughly. When the symptoms have subsided, the ligature may be cautiously loosened for a moment and then quickly reapplied. This should be done several times, at intervals, so as to allow only a small quantity of the poison to pass into the system each time.

4. The surface of the wound should be thoroughly and repeatedly washed.

CYANIDE OF POTASSIUM.

Used in photography, electro-gilding and silvering, also to clean lace. Purposes of suicide. Two and a

half grains equivalent to one grain of anhydrous prussic acid, or fifty minims of B. P. solution.

Symptoms.—Appear at once. Severe burning pain in stomach, foaming at mouth, loss of power in limbs, insensibility, spasmodic breathing, convulsions, tetanic stiffness of jaws and body, and death rapidly.

Fatal Dose.—Five grains usually fatal.

Treatment.—1. Large draughts of SULPHATE OF IRON (green vitriol) and water, to be taken at once.

2. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha.

3. Give STIMULANTS, such as brandy, liquor ammoniæ (half a drachm in water), sal volatile (a drachm in water), or chloric ether (half a drachm in water), frequently repeated. If patient cannot swallow, to be given in an enema, or brandy may be injected under the skin. Inhalations of ammonia on a pocket handkerchief should be tried.

4. Alternate hot and cold DOUCHE, the water being poured over the chest from a height.

5. Hypodermic injection of ATROPINE gr. $\frac{1}{50}$ (2 minims of the 1 in 100 solution), or tincture of belladonna internally (thirty drops in water).

6. ARTIFICIAL RESPIRATION (twenty in the minute), to be maintained for an hour or more.

7. BATTERY. Mild interrupted current to chest walls and over heart.

DALBY'S CARMINATIVE.

The composition of this preparation is said to be: Carbonate of magnesium forty grains, oil of peppermint one minim, oil of nutmeg two minims, oil of

aniseed three minims, laudanum five minims, spirit of pennyroyal and tincture of asafœtida, of each fifteen minims, tincture of castor and compound tincture of castor, of each thirty minims, and peppermint water two ounces. A teaspoonful contains one sixty-fourth of a grain of opium, or about four minims of laudanum.

Death from forty drops given to an infant.

The treatment is as for OPIUM poisoning.

DATURINA—DATURINE.

Is in all probability a mixture of atropine and hyoscyamine (Ladenburg).

For treatment, see ATROPINE.

DEADLY NIGHTSHADE—ATROPA BELLADONNA.

For symptoms and treatment, see BELLADONNA.

Often confounded with Woody Nightshade or Bitter Sweet (*Solanum dulcamara*), which has a purple flower and red berries, and with the Garden Nightshade (*Solanum nigrum*), which has a white flower and black berries. Medical witnesses and coroners often wrong on this point. If in doubt, refer to plates in Bentley and Trimen, or Stephenson and Churchill.

DIGITALIS—FOXGLOVE—DIGITALIS PURPUREA.

How taken.—Mistaken for other drugs. Given ignorantly by quacks. Murder. Infusion has been recommended for spermatorrhœa; this might throw light on an otherwise obscure case. Case of poisoning recently seen from taking pills of digitalis furnished with an insoluble or slowly soluble coating.

Symptoms.—Purging with severe pain in abdomen. Vomiting, vomited matter having a grass-green color.

Pulse slow, small, irregular, and infrequent. Headache, lethargy followed by delirium and convulsions. Pupils dilated, insensible to light, skin cold, pallid, covered with sweat. Urine suppressed. Coma and death often quite suddenly.

Fatal Dose.—A somewhat uncertain poison. Recovery after taking two ounces of the tincture.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or sulphate of zinc (a scruple in water), or ipecacuanha (forty grains in water). Apomorphine may be used as an emetic.

2. Twenty grains of tannic or gallic acid in hot water, repeated frequently, or hot strong tea or coffee.

3. STIMULANTS, such as hot gin or brandy and water, sal volatile, chloric ether, injected into rectum if not retained by stomach.

4. A hypodermic injection of gr. $\frac{1}{120}$ of aconitine (2 minims of a 1 in 240 solution), or six minims of the tincture of aconite by mouth or rectum, to be repeated in half an hour if obvious improvement in the heart's action.

5. The RECUMBENT POSITION to be strictly maintained for some time after all symptoms have subsided.

DUBOISIA—DUBOISINE.

Is probably identical with hyoscyamine (Ladenburg).

One case of poisoning by taking eye-drops instead of medicine.

For treatment, see ATROPINE.

EMERALD GREEN—SCHEELE'S GREEN.

An arsenite of copper. Largely employed in the

arts and manufactures. Constitutes wholly or in part many green pigments, such as "Mineral Green," "Brunswick Green," and "Vienna Green." Different shades are produced by its admixture with whiting or oxide of zinc. Largely used in wall papers, also to color artificial flowers, wreaths, tarlatan dresses, wafers, confectionery, and even air-balls. Many cases of poisoning from sucking water colors. Many cases of obscure illness have been traced to presence of arsenic in wall papers.

Symptoms.—Those of chronic arsenical poisoning; often very severe, the effects lasting months or even years.

For treatment, see ARSENIC.

ERGOT.

May be given to procure abortion. Action on parturient uterus very certain, action on pregnant uterus very uncertain. Epidemics of gangrene from eating bread made with ergotized rye, but of no importance to English or American practitioners. Ergotine is a watery extract not an alkaloid. Used hypodermically or in form of pill for arrest of hemorrhage. Ergotine is very active even in small doses.

Symptoms.—Toxic action very slight. Even in ounce doses the fluid extract, as a rule, induces no poisonous symptoms unless patient pregnant. In one case tingling in fingers and feet, cramps in legs, arms, and chest, with dizziness and weakness, feeling of coldness all over the body, pupils dilated and pulse small. Retching, vomiting, diarrhœa, and increased salivary secretion in some cases. Fatal case, *Lancet*, 1882, vol. ii., p. 526.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful in water), or of sulphate of zinc (a scruple in water), or ipecacuanha (forty grains in water).

2. A purgative of castor-oil (an ounce), or of Epsom salts (an ounce in water), or a drop or two of croton oil on the back of the tongue.

3. Tannic or Gallic Acid in half-drachm doses in water frequently, or strong tea. To be introduced by the stomach-pump if necessary.

4. Stimulants, such as brandy, sal volatile, or chloric ether.

5. Inhalations of Nitrite of Amyl, and a fiftieth of a grain of Nitro-glycerine by mouth (2 minims of the 1 per cent. alcoholic solution), repeated every quarter of an hour.

6. Recumbent Position. Warmth to the extremities.

If threatened abortion from administration of ergot, rest and opium are the best remedies. If symptoms alarming and patient pregnant, the propriety of evacuating the uterus will have to be considered.

Essential Oil of Almonds.

Contains from 10 to 15 per cent. of hydrocyanic acid, *i.e.*, is from five to eight times as strong as the Prussic acid of the British Pharmacopœia. Death from 17 drops, recovery after taking four drachms.

For symptoms and treatment, see Prussic Acid.

Essential Salt of Lemons.

This is an acid oxalate of potassium. For treatment, see Oxalic Acid.

ETHER (*Inhalation*).

How taken.—Used for anæsthetic purposes. Breaking of a jar of ether in room during night.

As an anæsthetic ether is not well adapted for (1) children, (2) patients with bronchitis, (3) operations by candle light, or when actual cautery has to be used. It often causes laryngeal spasm with violent struggling. Recovery is sometimes followed by excitement, which may last for some hours. It is more expensive than chloroform from the larger quantity used, and its odor is to many very unpleasant. On the other hand it is less dangerous to life than chloroform, vomiting is less frequent and not so troublesome, and it acts as a stimulant to the heart.

Treatment.—1. Pull the TONGUE well forward, and see that the mouth is clear. See that there is no obstruction by artificial teeth.

2. Commence ARTIFICIAL RESPIRATION at once, and keep it up for two hours if necessary—not faster than eighteen in the minute. The Howard method is the best—"grasp the base of the patient's chest, squeeze the two sides together, pressing gradually forward with all your weight for about three seconds, then with a push suddenly jerk yourself back."

3. Loosen everything about the chest. Open the doors and windows so as to have plenty of FRESH AIR. Alternate cold and warm DOUCHE to the chest and head.

4. Inhalations of NITRITE OF AMYL.

5. TRACHEOTOMY may be necessary, but to prove of avail it should be performed early.

6. In apparently hopeless cases, two or three violent blows on the chest, delivered in quick succession, may restore the heart's action.

Ethidene Dichloride.

Frequently used as an anæsthetic. Probably not a simple substance. Patient usually rendered nearly unconscious with laughing gas, and then the ethidene gradually admitted. Stertorous breathing with dilated pupil, but if air admitted with every third or fourth respiration pupil contracts. Vomiting sometimes but not as a rule. Dreams pleasant, often of rapid travelling or of music. Patient awakes as from a natural sleep, after effects slight. Exerts depressing action on heart and pulse, must be carefully watched. Given by Clover in 1872 cases, see *British Medical Journal*, May 29th, 1880. If in danger resort to following:

Treatment.—1. Stop administration.

2. Pull tongue forward with forceps.

3. Artificial respiration, a towel or fan being used to blow away vapor from lips.

4. Head low, legs and lower part of body raised.

Felix Mas—Male Shield Fern.

Only one case of poisoning on record, recently by the liquid extract. In Naphey's *Modern Medical Therapeutics*, sixth edition, 1880, p. 331, there is a prescription erroneously attributed to Dr. William Brunton, of London, in which the dose is given as one and a half *ounces* instead of *drachms*. This is a misprint. Symptoms from taking this draught, vomiting, purging, great pain in abdomen, collapse, and death.

Fly Powder—Fly Papers—Fly Water.

Nearly all contain arsenic. For treatment, see Arsenic.

Fowler's Solution.

This is Liquor Arsenicalis, strength 1 in 100. For treatment, see Arsenic.

Foxglove—Purple Foxglove—Digitalis Purpurea.

Grows wild in almost every county in England. Favorite garden plant.

For treatment, see Digitalis.

French Beans.

The seeds have sometimes given rise to symptoms of poisoning. The treatment should consist of the administration of an emetic and a purgative. Stimulants with rest and the application of warmth to the abdomen and legs would prove useful. Not a very active poison.

Fungi.

For treatment, see Poisonous Mushrooms.

Gas (Escape of, into Room).

For treatment, see Coal Gas.

Gelsemium or Gelseminum.

The yellow, wild or Caroline Jasmine, *Gelseminum nitidium* and *sempervirens*.

How used.—Alcoholic Extract and Tincture now pharmacopœial preparations. Active ingredient of several quack remedies, one of the most popular being called the "Electric febrifuge." Gelsemium often used as a "pain-killer" and to induce abortion. Has been taken by mistake. For table of cases, etc., see "Gelseminum as a Toxic Agent," *Lancet*, June 15th and 28th, 1878. For account of action and uses

consult *British Medical Journal*, June 5th and 12th, 1880.

Symptoms.—Pain in the brows, followed by giddiness, pain in the eyeballs and dimness of sight. Ptosis, the patient being quite unable to open his eyes fully. Diplopia, everything being seen double. Weakness in lower extremities, the patient staggering and swaying from side to side as he walks. Great pain in chest, suffocative spasm, struggling for breath, foaming at mouth, coma and death.

Fatal Dose.—Minimum fatal dose of liquid extract (1 in 1) about two drachms. A drachm of the tincture may usually be given hourly for three or four hours without producing very marked symptoms.

Treatment.—1. If seen soon after the dose has been taken the STOMACH-PUMP should be employed or an EMETIC of mustard (a tablespoonful in water) might be given. Should a long interval have elapsed the emetic would be useless and would probably increase the prostration.

2. A hypodermic injection of gr. $\frac{1}{50}$ of ATROPINE (2 minims of the 1 in 100 solution) should be given and repeated in a quarter of an hour if there be failure of respiration. In the absence of atropine, fifteen drops of tincture of belladonna may be given by mouth.

3. STIMULANTS. Brandy, chloric ether, sal volatile, may be given if sign of failure of the heart's action.

4. ARTIFICIAL RESPIRATION should be kept up steadily for at least three hours.

5. The cold and warm DOUCHE alternately over both head and chest.

GIBSON'S VERMIN-KILLER

Is said to contain about half a grain of strychnine in each powder.

For treatment, see STRYCHNINE.

GODFREY'S CORDIAL.

Said to be a mixture of sassafras, treacle and laudanum. It contains half a grain of opium in the ounce. In five years fifty-six deaths from this compound were recorded. The fatal dose for an infant is about a teaspoonful.

For treatment, see OPIUM.

HAIR DYES.

Those for darkening the hair have almost all the same composition, and consist of acetate of lead in solution, with sulphur suspended in the fluid. If there are two bottles, one usually contains ammonio-nitrate of silver and the other pyrogallic acid. If a hair dye is warranted "perfectly harmless" and "free from any injurious substance" it may be taken for granted that it contains lead. Some of these "harmless" solutions contain as much as ten grains of acetate to the ounce. Preparations for making the hair light consist of peroxide of hydrogen.

HEMLOCK—COMMON, GREATER, OR SPOTTED HEMLOCK—CONIUM MACULATUM.

Indigenous, growing wild in almost every climate and found by road sides, in hedges and waste places. Flowering in June and July. Frequently confounded with other umbelliferous plants. The lesser Hemlock or Fool's Parsley (*Æthusa cynapium*) has no spots on the stem, and the presence of the beard serves to distinguish it from all other Umbelliferæ. The wild

Cicely (*Chærophyllum sylvestre*) has a spotted stem, but is covered with hairs. The five-leaved water Hemlock (*Œnanthe phellandrium*) grows in ponds, and the stem is not spotted.

For treatment, see CONIUM.

HENBANE—HYOSCYAMUS NIGER.

Grows in waste places, chiefly on dry, calcareous soil.

For treatment, see ATROPINE.

HOLLY (*Ilex Aquifolium.*)

Bad effects from eating the berries in a few cases, chiefly in children. Common symptoms are vomiting, pain in head and abdomen, purging, contraction of pupils, drowsiness, loss of consciousness, and collapse. Treatment would be hot water to facilitate the vomiting, stimulants freely, friction to limbs with warm hand, hot blankets, hot-water bottles to extremities and perhaps hypodermic injection of morphia. Coffee into the rectum might be tried.

HUNTER'S CHLORAL

Is in all probability syrup of chloral flavored with syrup of tolu and elder flower. Strength ten grains or more to the drachm.

HYDRATE OF CHLORAL.

See CHLORAL.

HYDROCHLORIC ACID—MURIATIC ACID—SPIRITS OF SALT.

How taken.—Cases of poisoning not common. Usually mistaken for beer or brandy.

Symptoms.—Burning heat extending from throat

to region of stomach, vomiting of acid fluid of a dark color mixed with mucus and altered blood. Tongue swollen and dry, great thirst, difficulty in swallowing. Pulse small, frequent, and irregular, skin cold and clammy. The mind usually remains clear till the last. Death may be delayed for some weeks.

Fatal Dose.—A drachm usually fatal, but recovery from larger quantity, even an ounce.

Treatment. — 1. Large draughts of SOAP AND WATER to be taken at once. BICARBONATE OF POTASSIUM, bicarbonate of sodium, ammonia, sal volatile, or even common washing soda, to be taken freely, well diluted with water. Magnesia or lime-water may be used if at hand. Dinneford's fluid magnesia is useful.

2. Milk, oil, thick gruel, white of egg and water, gum and water, and linseed tea, are all useful.

3. A hypodermic injection of MORPHINE to ward off shock.

As a rule, the stomach-pump cannot be employed with safety.

HYDROCYANIC ACID—PRUSSIC ACID.

How taken.—Accident. Suicide. Murder. Inhalation of vapor of anhydrous acid. The dilute acid of the British Pharmacopœia contains 2 per cent. of anhydrous acid, Scheele's 4 per cent.

Symptoms.—Come on in act of swallowing or almost immediately. Rapidly becomes insensible, with eyes fixed and glistening, pupils dilated and not acting to light, limbs flaccid, skin cold and covered with clammy perspiration, pulse imperceptible. Respiration gasping and at long intervals, and there may be convulsions.

Fatal Dose.—From forty minims to a drachm would probably prove fatal.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful in water), or of sulphate of zinc (half a drachm in water), or of ipecacuanha wine (an ounce), if a large quantity taken, and the patient seen at once. Time all important.

2. Give Stimulants, brandy, chloric ether, ammonia, sal volatile, *ad libitum*. If patient cannot swallow give an enema, or brandy may be injected hypodermically. Inhalations of Ammonia on a pocket-handkerchief.

3. Alternate hot and cold douche, the water being dashed over the patient, or poured over head and chest from a height.

4. A hypodermic injection of gr. $\frac{1}{50}$ of Atropine (2 minims of the 1 in 100 solution), or 30 drops of tincture of belladonna by mouth. To be repeated if necessary.

5. Artificial Respiration (about 20 in the minute) to be kept up steadily.

6. Battery. Mild interrupted current to chest walls and over region of heart.

Hyoscyamina—Hyoscyamine.

An alkaloid obtained from *Hyoscyamus niger*. It is also contained in *Atropa belladonna*, *Daturia Stramonium* and *Duboisia myoporides* (Ladenburg). *Hyoscyamus niger* also contains hyoscine.

For treatment, see Atropine.

Hyoscyamus—Henbane—Hyoscyamus Niger.

How taken.—Plant eaten by mistake for parsnips. Tincture mistaken for black-draught.

Symptoms.—Great excitement, fulness of pulse, flushing of face, giddiness, loss of power in limbs, dilated pupils, double vision, nausea, and vomiting. From large doses, loss or incoherence of speech, delirium, confusion of thought, insensibility and coma, or perhaps a condition resembling mania.

For treatment, see ATROPINE.

IODINE.

How taken.—Usually by mistake; rarely used for purposes of murder or suicide.

Symptoms.—Pain and heat in throat and stomach, with vomiting and purging; vomited matter may be yellow from the iodine, or blue, if any starchy food in the stomach. Stools may contain blood. Giddiness, faintness, and convulsive movements not uncommon.

Fatal Dose.—Death from twenty grains, but recovery from much larger quantity. Prognosis, on the whole good.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc (a scruple in water), or ipecacuanha wine (half an ounce or more).

2. STARCH and water, or arrowroot, or gruel, or white of egg and water, given freely.

3. Inhalation of NITRITE OF AMYL.

4. Hypodermic injection of gr. ½ of MORPHINE to relieve pain, to be repeated as often as necessary.

IODOFORM—IODOFORMUM.

When inhaled may act as an anæsthetic. The case is recorded of a gentleman who was ordered a gramme of iodoform to use as an application to a chancre. The next day, towards evening, as he had

not been seen the previous night, his friends broke into his room, and to their astonishment found him lying on the bed in a deep sleep. He did not respond to their repeated shouting, and had to be well shaken before he could be roused. He was unable to account for his abnormal slumber, for he had not indulged in any way on the previous day. Two hours later, after a good dinner, his clothes and breath still smelt strongly of iodoform. The box which had contained the iodoform was in the bed, with powder scattered about. No ill effects were experienced, with the exception of slight giddiness.

Two cases are recorded in which the internal administration of the drug produced disagreeable symptoms. One patient took forty-two grains in eight days, and the other seventy-five grains in seven days. The symptoms produced were giddiness, vomiting, and deep sleep, from which the patient was roused with difficulty. This somnolence alternated with periods of excitement lasting several hours. This condition was followed by delirium, intense headache, a sense of impending death, spasmodic contractions of the muscles of the face, and double vision. Deep inspiration, alternated with periods of apnœa of about half a minute's duration. The symptoms gradually passed off in five or six days.

Cases of iodoform poisoning are not uncommon in surgical practice when the drug is used freely as an antiseptic dressing. (For cases, see *British Medical Journal*, 1882, vol. i., p. 903.)

Symptoms.—Slight nocturnal delirium, unaccountable drowsiness, and progressive emaciation, with high temperature and rapid pulse. The symptoms

sometimes closely resemble those of meningitis. In some cases death has occurred. Iodoform cannot be removed from a deep sinus or wound simply by washing with water. The best way would be to syringe it out with oil of eucalyptus. The symptoms occur most frequently when the iodoform is used in conjunction with carbolic acid dressings, the explanation given being that the carbolic acid irritates the kidneys, and renders them less able to eliminate the iodine.

Jaborandi.

The hypodermic injection of gr. $\frac{1}{50}$ of atropine (two minims of the 1 in 100 solution of sulphate of atropine) will at once arrest the symptoms. Twenty-five minims of tincture of belladonna by mouth will succeed almost as well.

"Kairin."

An antipyretic introduced as a substitute for quinine. Is an artificially prepared alkaloid. Word itself is coined, the chemical name of the drug being oxychinoline-methyl hydride. Dose recommended by German authorities is from a third to half a gramme, but in old people, or those who are weakly, it should not exceed one grain every alternate hour. No actual case of poisoning on record, but it is said, in large doses, to produce cyanosis and collapse; see *British Medical Journal*, Jan. 12th, 1884.

For treatment, see Resorcin.

Laburnam—Cytisis Laburnam.

All parts of plant are poisonous, wood, bark, leaves, flowers, pods, and seeds. Poisonous properties de-

pend on presence of Cytisine, which is also contained in Arnica.

Symptoms.—Come on rapidly. Purging, vomiting, great restlessness, then drowsiness and insensibility with convulsive twitchings.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha wine (an ounce in water).

2. STIMULANTS in moderation; brandy, chloric ether, sal volatile, etc.

3. Injection of a pint of hot strong coffee into the rectum.

4. Alternate hot and cold douche to the head and chest.

LAUREL WATER.

For treatment, see PRUSSIC ACID.

LEAD (ACUTE POISONING).

Any compound of lead soluble in the gastric juice might, if taken in sufficient quantity, give rise to acute symptoms. Most of the cases occur from taking the acetate, "sugar of lead." Sometimes the carbonate, "white lead," is taken, and sometimes the subacetate in the form of Goulard's solution. Sugar of lead formerly popular for suicidal purposes, now if taken at all it is generally by accident. It has been mixed with flour in place of alum. White lead has been mistaken for chalk, and Goulard's solution has been drunk instead of wine.

Symptoms.—Dryness of throat, metallic taste, great thirst. Colic, especially about the navel, relieved by pressure. Muscles of abdomen usually rigid. Al-

ways constipation. Cramps in the legs, cold sweats, paralysis of lower extremities, convulsions.

Fatal Dose.—Patient should recover from an ounce of the acetate which is not nearly such a powerful poison as is commonly supposed. Recovered from three-quarters of a pint of Goulard's solution. Recovery after taking an ounce of white lead.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful), or of sulphate of zinc (twenty grains), or of ipecacuanha (forty grains in water).

2. Give half a drachm of dilute SULPHURIC ACID, or aromatic sulphuric acid, in water; or half an ounce of SULPHATE OF MAGNESIUM (Epsom salts); or half an ounce of SULPHATE OF SODIUM (Glauber's salts); or all three may be given together freely diluted with water.

3. MILK, white of egg and water, barley-water. POULTICES to abdomen.

4. If much pain, a hypodermic injection of gr. $\frac{1}{3}$ of MORPHINE.

5. A course of IODIDE OF POTASSIUM to eliminate the drug.

LEAD (CHRONIC POISONING).

"WRIST DROP"—"LEAD COLIC"—"LEAD PALSY."

May arise in many ways. Taken medicinally for too long a time to check diarrhœa or bleeding. Red lead used to adulterate sugar, snuff, etc., snuff and farinaceous food packed in lead wrappers. In cider and wines fermented in jars with a glaze containing lead. In beer from the engines or leaden tubing. Sleeping in a room recently painted. Eating pork kept in leaden vessels. Drinking rum kept in leaden

cisterns. Leaden tops to bottles of pickles. Patent taps to bottles of aerated water. Hair dyes and cosmetics. Living near lead works. Glazers of cards, and workers in Brussels lace. Artists. Painters. Compositors.

Symptoms.—Pain chiefly in region of umbilicus, "colic," drawing in of abdominal walls. Dry mouth, offensive breath, thirst, astringent taste in mouth. Blue line on gums, brown, dirty teeth. Loss of appetite, constipation. Paralysis of one or more groups of muscles, "wrist-drop" most common form. Irritability of mind, loss of sleep, tearing and burning pain in shoulders and arms, marked anæmia, wasting, disturbance of digestion. Pains in joints simulating rheumatism. Anæsthesia of large tracts of skin. Amaurosis. Loss of sexual appetite. Abortion common in women.

Treatment.—1. Blue pill at bedtime, saline draught in morning.

2. ℞. Mag. Sulph. ʒj, Ferri Sulph. gr. iii, Acidi Sulph. dil. ♏xv, Sp. Chloroform. ♏xv, Aq. Menth. pip. ℥i, t. d. s., for four days. Add Tinct. Belladonn. ♏xv, if much colic.

3. Pot. Iodid. gr. v, Sp. Chloroform. ♏xv, Aq. ad ʒj, t. d. s., for a week.

4. Good diet. Cod-Liver Oil, Kepler's Extract of Malt, Pancreatic Emulsion, Parrish's Syrup of Hypophosphites, Port Wine.

5. Massage is of the greatest possible value in these cases, especially for the paralyzed muscles. Much depends on the form of massage employed, the duration of each *séance*, etc. For most cases *effleurage* and *pétrissage* answer best, the *séance* lasting not

more than fifteen minutes, being repeated twice or three times a day. The services of a properly trained *Masseuse* are essential. Shampooing is of but little value. (See *Massage as a Mode of Treatment.*)[1]

6. Faradization for paralyzed and wasting muscles, from ten to fifteen minutes daily for two or three months. The slowly interrupted constant current similarly employed is even more efficacious. Should be employed in conjunction with the massage.

All of no avail if source of ingestion of lead not discovered and arrested. Prophylactic treatment is of the utmost importance, especially to workers in lead. The work-rooms should be thoroughly ventilated. Hands should be washed, and outer garments changed before leaving work. Meals should never be taken in the work-rooms. Warm baths should be frequently taken. Sulphuric acid drink may be useful.

Lobelia—Indian Tobacco—Lobelia Inflata.

Much used by the Coffinites. Their theory is that "Heat is life and want of heat disease," so lobelia and capsicum are their chief remedies. Is also used by the "medical botanists" and "herbalists."

Symptoms.—Severe vomiting with intense depression and prostration. Headache, giddiness, tremors, insensibility, convulsions, collapse, death.

Fatal Dose.—A drachm of the powdered leaves would probably prove fatal. More likely to kill in old people and young children, especially when it is not rejected by vomiting.

Treatment.—1. As a rule lobelia induces vomiting, and an emetic is not required. In elderly people or

[1] London: H. K. Lewis, 1886.

young children, it may be necessary to use the stomach-pump, or give an emetic of mustard, sulphate of zinc, or ipecacuanha wine.

2. TANNIC ACID or gallic acid (half a drachm) frequently repeated, or strong tea. To be introduced with stomach-pump, or siphon if necessary.

3. STIMULANTS. Brandy, sal volatile, chloric ether, etc., to be given freely.

4. Twenty minims of tincture of nux vomica by mouth, or, better, a hypodermic injection of gr. $\frac{1}{25}$ of nitrite of STRYCHNINE (2 minims of a 1 in 50 solution).

5. WARMTH to the surface, hot blankets, hot-water bottles, etc.

6. The RECUMBENT POSITION to be strictly maintained, even after the acute symptoms have subsided.

LORDS AND LADIES — COWS AND CALVES—THE PARSON IN THE PULPIT—WAKE ROBIN—CUCKOO-PINT.

(*Arum Maculatum.*)

Common all over England, abounds in moist hedgerows and shady woods.—*British Medical Journal*, May 7th, 1881.

How taken.—Commonly by children. In one case by an adult for tape-worm.

Symptoms.—Swelling of the tongue, vomiting and severe purging, convulsions, dilated pupils, insensibility, coma.

Treatment.—1. Emetic of sulphate of zinc or of ipecacuanha.

2. Dose of castor-oil.

3. Cup of strong coffee.

4. Linseed meal poultices if much pain.

Lunar Caustic—Nitrate of Silver.

Portion of stick sometimes swallowed in making applications to the throat.

Symptoms.—Sometimes whitish flakey matter is vomited, turning black on exposure to the air.

Treatment.—1. Common Salt dissolved in water or milk should be given freely.

2. An Emetic of mustard (a tablespoonful in water), or sulphate of zinc (twenty grains), or ipecacuanha wine (a tablespoonful in water).

3. White of egg and water, barley-water, arrow-root, etc.

Lucifer Matches.

For treatment, see Phosphorus.

Morphia—Morphina—Morphine.
(Acute Poisoning.)

How taken.—Carelessness in dispensing or prescribing; in one case twelve grains were ordered instead of a twelfth of a grain. Hydrochlorate of morphine, given instead of hydrochlorate of quinine, the drugs having become mixed in the manufactory. Overdose given hypodermically by accident. Local application to sores.

Symptoms.—At first may be mental excitement of a pleasurable nature, with increased physical activity and acceleration of heart's action. Then dryness of the mouth, increased thirst, headache, weariness, sense of weight in the limbs, incapacity for exertion, sleepiness, and diminished sensibility. This passes into a condition of deep sleep from which the patient cannot be awakened; reflex action ceases, eyes are half closed, the pupils strongly contracted (very rarely

dilated), the lower jaw falls and the skin is cold and clammy, the only sign of life being the continuance of circulation and respiration. Respiration is slow, labored, irregular and stertorous, and the pulse is feeble, compressible, and perhaps almost imperceptible. The pulse and respiration finally fail and death ensues.

Fatal Dose.—Death from a grain of the acetate or hydrochlorate, but recovery after taking as much as twenty or thirty grains. With good treatment the patient ought to recover from four to six grains without much difficulty. Do not forget the possibility of a relapse from fresh absorption of poison. Also possibility of death from secondary symptoms.

Treatment.—1. If taken by mouth, use STOMACH-PUMP, or give an EMETIC of mustard (a tablespoonful or more in water), or of ipecacuanha (forty grains in water), or of sulphate of zinc (twenty grains or more in water), or a hypodermic injection of gr. $\frac{1}{10}$ of APOMORPHINE may be given (one of the tabloids or 5 minims of a 1 in 50 solution). Wash out the stomach thoroughly. In morphine poisoning vomiting is induced with difficulty. If the morphine were taken hypodermically, this treatment would be useless.

2. Keep the patient walking about, flap him with a wet towel, shout at him, and rouse him by every means in your power. Apply BATTERY sharply to the limbs. AMMONIA or sal volatile to the nose.

3. Inject a pint of hot strong COFFEE into the bowel with stomach-pump or enema apparatus.

4. Pour a large jug of COLD WATER over his head from a height, and repeat it frequently, drying him in the intervals.

5. If signs of failure of respiration, give a hypodermic injection of gr. $\frac{1}{20}$ of sulphate of ATROPINE (three of the tabloids or 5 minims of the B. P. solution), repeating it in a quarter of an hour if necessary. Bartholow recommends gr. $\frac{1}{20}$ of atropine for every grain of morphine taken. Other authorities recommend the injection of from gr. $\frac{1}{4}$ to $\frac{1}{2}$ of atropine, repeating it in two hours if necessary. If atropine cannot be obtained, give a hypodermic injection of thirty minims of tincture of belladonna.

6. Inhalation of NITRITE OF AMYL.

7. ARTIFICIAL RESPIRATION to be kept up steadily for at least two hours.

8. MASSAGE of much value after the acute symptoms are over.

MORPHIA—MORPHINA—MORPHINE.

(CHRONIC POISONING—THE MORPHIA HABIT.)

"The introduction of the hypodermic syringe has placed in the hands of man a means of intoxication more seductive than any which has hitherto contributed to his craving for narcotic stimulation. So common now are the instances of its habitual use and so enslaving is the habit when indulged in by this mode, that a lover of his kind must regard the future of society with no little apprehension. For every remote village has its slave, and not unfrequently several, to the hypodermic syringe, and in the large cities men in business and in the professions, women condemned to a life of constant invalidism, and ladies immersed in the gayeties of social life, are alike bound to a habit which they loathe, but whose bonds they are powerless to break"

(Bartholow). It is usually first resorted to for the relief of chronic pain, such as that of neuralgia or rheumatism. The dose is rapidly increased until as much as sixty grains of morphia may be taken in the day.

Treatment.—I. In slight cases, when the administration of the drug is still in the hands of the medical adviser, the following rules laid down by Bartholow may be found useful:

1. Do not stop the injections suddenly.
2. Diminish the dose gradually and without telling the patient.
3. Do not give morphia alone, but combine it with atropia.
4. Diminish the dose of morphia, and increase the dose of atropia until the effects of the latter predominate. When the full effects of the atropia are experienced, the patient will complain that the injections have lost their effect, and will ask to have them discontinued.

II. In more confirmed cases, when the administration of the drug is in the hands of the patient, the following hints will prove of service:

1. The patient must give up the custody of the syringe and morphia solution.
2. The dose must be diminished gradually so as to make but little demand on the moral strength and self-control of the patient. The rate of reduction should not exceed gr. $\frac{1}{16}$ every three or four days.
3. The bowels should be kept well open.
4. Tonics should be given—quinine or nux vomica with capsicum and hydrochloric acid, for example.
5. If the patient cannot sleep, give bromide of sodium in half drachm doses in plenty of water every

night at bedtime. The dose may be repeated if necessary.

6. If the stomach is irritable or if diarrhœa is a prominent symptom, give carbonate of bismuth in half drachm doses in milk three times a day. Another good remedy is carbolic acid and tincture of iodine, equal parts, a drop in water three times a day before meals.

7. If much depression, stimulants may be given, but cautiously and only in measured doses. Dry iced champagne is useful and so is coca wine.

8. Isolation may have to be resorted to, but it is better to keep your patient occupied and amused. Theatre-going is a valuable therapeutic agent.

9. The patient must be fed up. A good cook is half the battle.

10. One of the most valuable therapeutic agents in these cases is MASSAGE. It is impossible to lay down definite rules for its employment which will be applicable to every case. Every case must be taken on its own merits. The form of massage to be employed and the frequency and duration of the *séances* are important matters for discussion. Electricity is useful and should be employed in conjunction with the massage.

MORPHINE AND ACONITE.

For symptoms, etc., see ACONITE AND MORPHINE.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful or more in water), or of sulphate of zinc (twenty grains or more in water), or of ipecacuanha (forty grains in water), or a hypodermic injection of apomorphine (one tabloid or five minims of the 1 in 50 solution).

2. Flap the patient with a wet towel, especially about the chest, or over the region of the heart. Give AMMONIA and CHLORIC ETHER freely. Keep him in RECUMBENT POSITION and do not attempt to walk him about.

3. WARMTH to extremities by hot towels or hot-water bottles. Friction with the warm hand.

4. ATROPINE. A hypodermic injection of gr. $\frac{1}{20}$ of sulphate of atropine (three tabloids or five minims of B. P. solution), or by mouth or rectum, four minims of the atropine solution, or twenty minims of tincture of belladonna. If any improvement repeat the dose in twenty minutes.

5. COFFEE. An enema of a pint of hot strong coffee.

6. NITRITE OF AMYL. Inhalations of nitrite of amyl.

7. BATTERY. Interrupted current to the extremities.

8. ARTIFICIAL RESPIRATION to be maintained for two hours if necessary.

MORPHINE AND CHLORAL.

For symptoms, etc., see CHLORAL AND MORPHINE.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc (two tabloids or a scruple in water), or ipecacuanha (a scruple of the powder in water). The stomach must be thoroughly washed out, and coffee may be advantageously used for the purpose. The best emetic is apomorphine, one tabloid or 5 minims of the 1 in 50 solution injected hypodermically.

2. Rouse the patient by flapping him with a wet towel, etc. AMMONIA to the nostrils. Cold DOUCHE to the head and chest, followed by warm douche.

3. Patient to be kept warm by hot blankets, fre-

quently renewed, hot-water bottles, hot bricks, dry friction, etc.

4. ATROPINE. Give a hypodermic injection of gr. $\frac{1}{20}$ of atropine (three tabloids or 5 minims of B.P. solution of sulphate of atropine), repeated in a quarter of an hour if necessary.

5. STRYCHNINE. If the symptoms of chloral poisoning predominate, give a hypodermic injection of gr. $\frac{1}{25}$ of nitrate of strychnine (2 minims of the 1 in 50 solution), repeating it in half an hour, if necessary, or fifteen minims of tincture of nux vomica may be given by mouth or rectum.

6. COFFEE. A pint of hot strong coffee to be injected into the bowel.

7. ARTIFICIAL RESPIRATION to be maintained for at least two hours. Massage is useful.

"MOTHER'S FRIEND."

This is a "soothing syrup" extensively used in some parts of the country. It is eminently adapted for increasing the infant mortality of the neighborhood. Eight or ten drops usually answer the purpose, the child dying speedily with all the symptoms of opium poisoning. The jury generally return a verdict of accidental death, and mildly censure the chemist or patent-medicine vendor from whom it was bought. It is said on good authority that 15,000 children are killed every year by soothing syrups and other similar preparations.

MUSCARINE—FLY FUNGUS—AGARICUS MUSCARIUS —AMANITA MUSCARIA.

Muscarine is the active principle of the fly fungus. This fungus is one of the most beautiful of the Agari-

cini. Usually bright red, with yellow spots. Common in birch woods. Not plentiful in England, but abundant in the Highlands. Used in Siberia and Kamtschatka to produce intoxication. Many cases of poisoning by it on record. For account of its action, see *Practitioner*, 1880, vol. ii, page 88.

How taken.—Mistaken for edible varieties, or taken in ignorance of its poisonous properties.

Symptoms.—Usually appear in from half an hour to an hour after taken. Violent colic, with vomiting and diarrhœa. Great mental excitement followed by coma. Pulse slow, breathing stertorous, pupils dilated, extremities cold. Death from action on heart.

Fatal Dose.—Difficult to say: a very small quantity may kill. Most fatal of all the fungi, so prognosis must be guarded.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc (three tabloids or a scruple in water), or of ipecacuanha (a scruple of the powder in water).

2. ATROPINE. Give twenty drops of tincture of belladonna in water, or better, a hypodermic injection of gr. $\frac{1}{60}$ of ATROPINE (2 minims of the B.P. solution), to be repeated in half an hour if necessary. This is the specific antidote.

3. CASTOR-OIL. Give an ounce of castor-oil to clear out the intestines.

4. STIMULANTS. Give stimulants, such as brandy, spirits of ether (a drachm in water), spirits of chloroform (a drachm in water), or sal volatile (a drachm in water).

5. WARMTH to extremities and poultices to abdomen.

Mushrooms—Poisonous Mushrooms.

The chief fungi which are actually poisonous are: *Amanita muscaria*, *Amanita phalloides*, *Russula integra*, *Boletus luridus*, and their varieties. It must be remembered that mushrooms disagree with many people, and there may be disturbance of the stomach and bowels after eating a perfectly harmless variety. Some kinds of mushrooms are very liable to decompose, and then they act much in the same way as would bad meat or cheese. They are more likely to induce disagreeable symptoms if badly cooked. It is always dangerous to warm up a dish containing mushrooms.

Prof. Ponfick, of Breslau, maintains that all mushrooms are poisonous, but that the washing they ordinarily undergo to cleanse them removes most of the poison and renders them innocuous. See *Lancet*, December 2d, 1882.

For symptoms and treatment, see Muscarine.

Mussel Poisoning.

Cases of poisoning from eating mussels not at all uncommon. May have been gathered from ship's bottom in dock, and may be contaminated with copper from the sheathing, or with arsenic from the paint.

Symptoms.—Uneasiness and weight at pit of the stomach, sensation of numbness in the extremities, heat, dryness, and constriction in mouth and throat, thirst, shivering, difficulty of breathing, cramps in the legs, swelling and inflammation of the eyes, colic, vomiting and purging, itching of the skin, urticaria, failure of heart's action, collapse, death.

Treatment.—1. EMETIC of apomorphine (five minims of the 1 in 50 solution hypodermically), sulphate of zinc, mustard, or ipecacuanha.

2. CASTOR-OIL. An ounce at once to clear out the intestines.

3. STIMULANTS. To be given very freely, brandy, whiskey, champagne, sal volatile, spirits of chloroform, spirits of ether. Hot-water bottles to feet. Warm blankets. Rubbing limbs with brandy.

4. ATROPINE. Hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (two minims of 1 in 100 solution) with, if much pain, half a grain of morphine (five minims of the 1 in 10 solution).

NEPENTHE

Is said to consist of purified extract of opium, citrate of morphia, and grape-sugar mixed with sherry. It is probably of about the same medicinal strength as laudanum. For treatment, see OPIUM.

NEURALINE.

An application for the cure of neuralgia; consists of tincture of aconite, with chloroform and rose-water. Said to contain about one drop and a half of Fleming's tincture in each bottle. For treatment, see ACONITE.

NICOTINA—NICOTINE.

An alkaloid obtained from tobacco. Like conine, it is a liquid alkaloid. One of the most deadly poisons known, causing death in three minutes. Murder in one case, suicide in another. Fatal dose not determined. For treatment, see TOBACCO.

NIGHTSHADE.

There are several plants known as Nightshade.

1. The Woody Nightshade, or Bitter Sweet, or Dulcamara (*Solanum dulcamara*), has purple flowers and red berries.

2. The Black, or Garden Nightshade (*Solanum nigrum*) has white flowers and black berries.

3. The Deadly Nightshade, or Dwale, or Belladonna (*Atropa belladonna*), has dingy flowers, berries the size of a cherry, marked with deep centre furrow, shining black when ripe.

For Deadly Nightshade, see BELLADONNA.

Berries of Woody Nightshade and Garden Nightshade sometimes prove fatal to children.

Symptoms.—Purging, vomiting, and convulsions, alternating with coma.

Treatment.—1. EMETIC of ipecacuanha, or mustard and water.

2. PURGATIVE of castor-oil.

3. STIMULANTS freely, such as brandy, gin, whiskey, or wine.

4. TEA or coffee.

NITRATE OF POTASSIUM—NITRE—SALTPETRE.

How taken.—Usually accidentally, mistaken for Epsom salts, or sulphate of sodium.

Symptoms.—Severe burning pain in abdomen, nausea and vomiting, sometimes purging, coldness in the limbs, partial paralysis, tremors, convulsions, collapse.

Fatal Dose.—One ounce may prove fatal, but may recover from two.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or sulphate of zinc (a scruple in water), or of ipecacuanha powder (a scruple in water).

2. Mucilaginous Drinks, white of egg and water, linseed tea, olive oil, etc.

3. Stimulants, if much collapse, five drops of essence of camphor on sugar, or brandy and hot water freely. Brandy and water to be injected into rectum; or under skin if power of swallowing lost.

4. Warmth. Patient to be wrapped in hot blankets, hot water to feet, limbs to be kept warm by rubbing. Recumbent position to be strictly maintained.

5. Nitrite of Amyl. Inhalations of nitrite of amyl.

6. Atropine. Hypodermic injection of atropine (three minims of the B. P. solution) might be tried if there were signs of heart failure.

Nitrate of Silver—Lunar Caustic.

Portion of stick may be swallowed in making applications to throat.

Symptoms. — Sometimes whitish flaky matter is vomited, which turns black on exposure to the air.

Treatment.—1. Common Salt dissolved in water or milk should be given freely.

2. An Emetic of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

3. White of Egg, barley-water, arrowroot, etc.

Nitric Acid—Aqua Fortis.

How taken.—Accident or suicide. In one case acid was poured into a child's mouth, in another into a person's ear whilst asleep. When a patient has a suicidal tendency, take care not to leave the nitric acid bottle about after testing urine.

Symptoms.—Come on immediately with intense burning pain in the throat and gullet extending to the stomach. Violent vomiting, the vomited matter consisting of food mixed with altered blood—brown in color—and shreds of membrane stained yellow. It has an acid reaction and a characteristic odor. The mucous membrane of the mouth is soft and white, or may be yellow or even brown. There is great difficulty in speaking, and the power of swallowing may be entirely lost. There is great pain in the abdomen, breathing is carried on with difficulty, the pulse is small, frequent, and irregular, the surface is cold, and there may be rigors. There will probably be constipation and perhaps suppression of urine.

Fatal Dose.—Recovery after taking half an ounce, but two drachms might prove fatal.

Treatment.—1. Large draughts of SOAP AND WATER to be taken at once. BICARBONATE OF POTASSIUM, bicarbonate of sodium, AMMONIA, sal volatile, or even COMMON WASHING SODA, to be taken freely, well diluted with water. Magnesia or LIME-WATER may be used if at hand. Dinneford's fluid magnesia is useful.

2. Milk, oil, thick gruel, white of egg and water, gum and water, and linseed tea, are all useful.

3. MORPHINE. A hypodermic injection of half a grain to ward off shock.

As a rule the stomach-pump cannot be employed with safety. If larynx involved, TRACHEOTOMY may be necessary. Stricture of the œsophagus might occur as a secondary result.

NITRITE OF AMYL.

Treatment.—1. STOMACH-PUMP or an EMETIC of

mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. Fresh Air. All windows and doors to be thrown wide open, and the patient fanned.

3. The recumbent position should be maintained.

4. Artificial Respiration may be resorted to if necessary.

Nitrite of Sodium.

Used of late in treatment of epilepsy, angina pectoris, and other diseases. Allied in general action to nitrite of amyl and nitro-glycerine. Substance sold as nitrite of sodium often largely adulterated with the inert nitrate. Nitrite sometimes recommended in twenty-grain dose, but too much; two or three grains enough if drug pure.

Symptoms.—Patient complained of "feeling giddy;" "took all her strength away;" was afraid she would "go off insensible;" blueness of face, lips, and hands; throbbing all over body. Feeling of anxiety, with prostration, nausea, and vomiting.

Fatal Dose.—No fatal case on record.

Treatment.—1. Stomach-pump or an Emetic of mustard, ipecacuanha, or sulphate of zinc.

2. Fresh Air. Windows and doors to be thrown wide open and the patient fanned.

3. Recumbent Position to be maintained.

4. Ergot. A drachm of liquid extract by mouth, or five minims of the Injectio Ergotini Hypodermica under the skin.

5. Atropine. Hypodermic injection of gr. $\frac{1}{60}$ of sulphate of atropine.

6. Artificial Respiration if necessary.

NITRO-BENZIN—NITRO-BENZOL—ARTIFICIAL OIL OF BITTER ALMONDS—ESSENCE OF MIRBANE.

How taken.—Workers in aniline dyes exposed to danger from handling it. Accidents from sucking syphons, decanting it, the breaking of large carboys. Sometimes added to liqueurs or sweetmeats for the sake of its odor. Pomade sometimes scented with nitro-benzin. In one case, eighteen people poisoned by mistaking a flask of nitro-benzin for a cordial. May kill when taken in the gaseous form.

Symptoms.—May be curiously delayed even, it is said, for a day or two. Weariness, discomfort, nausea, and a peculiar benumbing of the head. Great anxiety, want of breath, confusion of thought. Cyanosis often very marked. May be convulsions, sometimes like tetanus. Pupils dilated, though they generally act a little to light. Death by asphyxia.

Fatal Dose.—From merely tasting it. Eight or nine drops perhaps.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a scruple of the powder), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. STIMULANTS, such as brandy, liquor ammoniæ (half a drachm in water), or chloric ether (a drachm in water), frequently repeated. If patient cannot swallow, to be given as enema, or brandy may be injected under skin. Inhalations of ammonia on pocket-handkerchief.

3. DOUCHE. Alternate hot and cold douche, the water being poured over the chest from a height.

4. ATROPINE. Hypodermic injection of gr. $\frac{1}{50}$ of atropine (two minims of the P. P. solution), or thirty drops of tincture of belladonna.

5. Artificial Respiration to be maintained till the patient has recovered, or no further pulsation can be detected at the heart. This is most important.

6. Battery. Mild interrupted current to chest-walls, and over region of the heart.

Nitro-Glycerine.

How taken.—Mistaken for beer. Mixed with gunpowder, and taken for cure of boils. Used for blasting purposes, and as a remedy for angina pectoris, neuralgia, and other complaints. Medicinally a one per cent. solution most commonly employed, but the five per cent. solution is often kept by chemists. The introduction of the chocolate tablets instead of the one per cent. alcoholic solution into the Pharmacopœia is a grave mistake, and its indiscriminate sale to the public in this attractive form as a remedy for a number of slight ailments is most objectionable. The only safeguard is to place it in the list of poisons. See Murrell's *Nitro-Glycerine as a remedy for Angina Pectoris.*[1]

Symptoms. — Headache, throbbing increased by movement. Pulsation all over the body, even to tips of the fingers. Arterial relaxation, the pulse tracings showing marked decrotism. Slight flushing of the face. Mental confusion. Depression, and feeling of anxiety. Nausea, sometimes even vomiting. Collapse, the patient falling down suddenly.

Fatal Dose.—No case on record from taking the one per cent. solution. Two mouthfuls of the crude drug fatal to an adult male.

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[1] London: H. K. Lewis, 1882.

Treatment.—1. RECUMBENT POSITION to be strictly maintained.

2. COLD-WATER cloths or ice to be applied to head.

3. ERGOT. A drachm of liquid extract of ergot by mouth, or a grain of ergotine (three minims of the Injectio Ergotini Hypodermica) might be injected subcutaneously, and repeated in a quarter of an hour.

4. ATROPINE. A hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (two minims of the B.P. solution), or twenty drops of tincture of belladonna by mouth.

Mr. Wharton Jones suggests belladonna for the headache caused by nitro-glycerine.

NITROUS OXIDE GAS—LAUGHING GAS.

A very safe anæsthetic for short operations such as extraction of teeth. Very few deaths on record, and these chiefly from the gag or a tooth causing suffocation.

Treatment.—1. Pull the TONGUE well forward and see that the mouth is clear. See that there is no obstruction by artificial teeth. See that your gag is all right. If missing, turn your patient upside down and slap his back.

2. ARTIFICIAL RESPIRATION to be commenced at once, and kept up for two hours if necessary, not faster than eighteen in the minute.

3. FRESH AIR. Loosen everything about the chest and neck. Open the doors and windows wide and fan the patient. Alternate hot and cold DOUCHE to chest and head.

4. OXYGEN GAS. Inhalations of oxygen gas, three or four pints. Nitrite of amyl.

5. In apparently hopeless cases, two or three violent blows on the chest, delivered in quick succession, may restore the heart's action.

Nux Vomica.

(*Strychnos Nux Vomica.*)

Sometimes known as Rats' Bane. Seeds called by the Germans Crow's Eyes.

The seeds weigh about thirty grains—enough to cause death.

How taken.—Powder easily procured, used as a vermin-killer. Extract taken by mistake. Suicide.

Symptoms.—See Strychnine.

Fatal Dose.—Half a drachm of the powder or three grains of the extract.

Treatment.—1. Stomach-pump, or stomach-siphon, if available at once, for after tetanic symptoms have set in, the introduction of the tube would excite a paroxysm.

2. Emetic of sulphate of zinc (half a drachm in water), or of mustard (a tablespoonful in water), or of ipecacuanha (a scruple of the powder in water). Should a difficulty be experienced in opening the jaw, put the patient under chloroform or ether, or give a hypodermic injection of gr. $\frac{1}{10}$ of apomorphine (5 minims of the 1 in 50 solution).

3. Animal Charcoal *ad libitum*, or tannic acid, or tincture of iodine. To be followed by stomach-pump, or another emetic.

4. Bromide of Potassium (half an ounce) in bad cases, with chloral (thirty grains), to be followed by the bromide (in two drachm doses), with or without chloral (ten grains), every fifteen or twenty minutes as long as necessary.

5. NITRITE OF AMYL inhalations.

6. CHLOROFORM or ETHER to the extent of producing muscular relaxation.

7. CURARE. A hypodermic injection of gr. ⅓ (4 minims of a 1 in 12 solution) may be given.

8. ARTIFICIAL RESPIRATION if possible.

OIL OF VITRIOL.

See SULPHURIC ACID.

OPIUM.

How taken.—Any of the officinal preparations of opium might be taken—tincture, extract, liquid extract, wine, etc., or it might be taken in the form of "Black Drop," "Godfrey's Elixir," "Dalby's Carminative," or "Battley's Solution." Children often poisoned by infusions or decoctions of the leaves, seeds, or capsules of the poppy, given to induce sleep or drowsiness. Cases of accidental poisoning from eating blossoms and fruit of the red poppy. Very commonly employed for suicidal purposes, also for murder. Cases of poisoning from use of opium in enemata and suppositories and from use of laudanum on poultices.

Symptoms.—Type of all simple narcotic poisons. A preliminary stage of mental excitement of an agreeable nature with acceleration of the heart's action. Soon replaced by headache, weariness, a sensation of weight in the limbs, incapacity for exertion, sleepiness, diminution of sensibility and contraction of the pupils. At first the patient can be roused with difficulty, but after a time it is impossible to make the slightest impression on him, reflex action ceases, the eyes are half shut, the pupils fail to respond to light,

the muscles are relaxed, the lower jaw falls, the skin is cold to the touch, and the face and lips are either pale or cyanotic. Respiration soon gets slow, irregular, and stertorous, the pulse is weak and compressible, and death ensues.

Diagnosis.—Opium poisoning may be mistaken for acute alcoholism. The history of the case, the odor of the breath, or of the vomited matter, and the presence of either alcohol or morphine in the urine are the chief points to which to attend. At the same time it must not be forgotten that a man who has been drinking may poison himself with opium, and opium is not unfrequently taken in porter. In profound drunkenness the pupils are usually dilated. To distinguish opium poisoning from apoplexy, look for paralysis of limbs or facial muscles, examine the condition of the heart and blood-vessels, and see if the pupils are equal. Distinguish from poisoning by chloroform, ether, etc., by smell in breath or in vomited matters. To distinguish from uræmic poisoning, history of case, condition of pupils, examination of urine. Are not cases of acetonæmia or diabetic coma sometimes mistaken for opium poisoning?

Fatal Dose.—Two and a half grains of extract, equal to four grains of opium, fatal. In one case death from a drachm of laudanum. Recovery from much larger doses, even from four or five ounces of the tincture. Children very susceptible to opium. The more strongly the pupils are contracted the worse the prognosis. Early vomiting is a good sign, and the occurrence of copious sweating is favorable.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful of the powder in water), or of

sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). APOMORPHINE a hypodermic injection of one tabloid or 5 minims of the 1 in 50 solution.

2. ROUSING. Keep the patient walking about, flap him with a wet towel, shout at him, pinch him, and rouse him by every means in your power. Apply the battery to the limbs sharply. AMMONIA or sal volatile to the nostrils. *Do not give wine or brandy.*

3. COFFEE. A pint of hot strong coffee injected into the bowel.

4. DOUCHE. Pour a large jug of cold water over his head from a height, and repeat it frequently, drying him in the intervals.

5. ATROPINE. Give a hypodermic injection of gr. $\frac{1}{20}$ of sulphate of atropine (three tabloids or 5 minims of the B. P. solution) if signs of failure of respiration. If atropine not at hand, give thirty minims of tincture of belladonna hypodermically or by mouth. Either might be repeated in a quarter of an hour. It is said that gr. $\frac{1}{20}$ of atropine will antagonize one grain of morphine. *N.B.* Some authorities recommend the injection of from gr. $\frac{1}{4}$ to $\frac{1}{2}$ of atropine, to be repeated in two hours if necessary.

6. NITRITE OF AMYL. Inhalations of nitrite of amyl freely.

7. ARTIFICIAL RESPIRATION should be kept up for at least two hours.

OPIUM (CHRONIC).

Is opium-eating or opium-smoking necessarily and universally pernicious? It has been too much the custom of writers on this subject to content them-

selves with drawing a doleful picture of a confirmed opium-debauchee, plunged in the lowest depths of moral and physical exhaustion; and, having formed the premises of their argument from this exception, to proceed at once to involve the whole practice in sweeping condemnation. We are told that the habitual opium-eater can be "recognized at a glance;" that there is a "characteristic attenuation," a "withered countenance," a "halting gait," and a "glassy deep-sunk eye." His digestive organs are "in the highest degree disturbed," he eats nothing, has hardly an evacuation a week, and is a "perfect wreck" both mentally and bodily. By degrees, as the habit becomes more confirmed, his strength fails, so that at last he can hardly crawl from place to place. After long indulgence he suffers from "nervous or neuralgic pains," from which his beloved opium affords no relief. His agony when the drug fails to produce its accustomed effect is terrible, and he suffers "the torments of the damned." Such are the accounts given by most of the older writers on the subject. Much of our knowledge of the effects of opium on the system is derived from the confessions of De Quincey, the English opium-eater; and he tells us that from 1804 to 1812, a period of eight years, during which he was a dilettante eater of opium, he enjoyed perfect health, and was never better in his life. It was only later, when he took the drug in enormous quantities, that his health suffered. It is well known that the Chinese are a nation of opium-eaters, and yet they are a muscular and well-formed race, the laboring classes being capable of great and prolonged exertion under a

fierce sun and in an unhealthy climate. Many people have attained the age of sixty or seventy who have been habitual opium-eaters for thirty years or more.

For detailed account of effects of opium-eating and opium-smoking, see *British Medical Journal*, May 21st and June 25th, 1881. For references to the literature of the subject, see *London Medical Record*, February and July, 1882. For treatment of the opium or morphia habit, see Bartholow's *Treatment of Diseases by the Hypodermatic method*, 4th edit., 1883, and Kane's *Opium-Smoking*, 1882.

Opium and Belladonna.

For symptoms, etc., see Belladonna and Opium.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). Hypodermic injection of apomorphine, one tabloid or 5 minims of the 1 in 50 solution, is a prompt emetic.

2. Coffee. An enema of a pint of hot strong coffee.

3. Rousing. The patient should be kept awake. Flicking with a wet towel, and mustard to the calves of the legs and over the region of the heart, will be found useful. Alternate hot and cold douche over head and chest.

4. Artificial Respiration may be resorted to if necessary.

Opium and Chloral.

For symptoms, etc., see Chloral and Opium.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). The stomach to be thoroughly washed out, coffee being used for the purpose if thought desirable.

2. Rouse the patient by flapping him with a wet towel. Ammonia to the nostrils. Cold douche to the head and chest, followed by warm douche.

3. Patient to be kept warm by hot blankets, hot-water bottles, hot bricks to the feet, dry friction, etc.

4. Atropine. Give a hypodermic injection of gr. $\frac{1}{60}$ of atropine (5 minims of the B.P. solution), repeating it in a quarter of an hour if necessary.

5. Strychnine. Should the symptoms of chloral poisoning predominate, give a hypodermic injection of gr. $\frac{1}{50}$ of sulphate of strychnine (one tabloid or 2 minims of the B.P. solution), or gr. $\frac{1}{25}$ of nitrate of strychnine (2 minims of the 1 in 50 solution), repeating it in half an hour if necessary, or fifteen minims of tincture of nux vomica may be given by mouth or rectum.

6. Coffee. Give hot strong coffee or inject it into the bowel.

7. Artificial Respiration to be maintained for some hours if necessary.

Oxalic Acid.

How taken.—Mistaken for other drugs. Suicide. Oxalic acid itself may be used, or salt of sorrel.

Symptoms.—Nothing pathognomonic—vary very much. May be almost instant death. More commonly burning pain in stomach, cramps in legs,

vomiting of dark-colored fluid containing altered blood. Feeling of constriction in the throat with hacking cough. Purging. Mouth sore and usually white. May be tetanus or coma.

Fatal Dose.—Death from two drachms, but recovery from half an ounce.

Treatment.—1. CHALK, lime, or whitening, given freely in water. The whitewash from a wall, or fence, or ceiling, may be used. Lime-water is an antidote, but the saccharated solution being stronger, is preferable. It should be given in drachm doses frequently repeated.

2. CASTOR-OIL. An ounce of castor-oil should be given to clear out the intestines.

The administration of potash, soda, ammonia, or of carbonate of potassium, sodium or ammonium, should be avoided.

PARAFFIN OIL—PETROLEUM.

Petroleum occurs native in many parts of America, and is usually obtained by sinking wells. It is often imported as *rock oil*. Paraffin oil, also known as *kerosine*, *mineral oil*, etc., is obtained from petroleum by distillation.

Recovery after swallowing a pint of petroleum. Recovery after taking quarter of a pint of paraffin.

Symptoms vary much, but often coma.

Diagnosis easy from smell of breath and vomited matters.

Treatment.—1. STOMACH-PUMP or EMETIC. Stimulants freely. Warmth to extremities.

PARALDEHYDE.

A colorless fluid recommended of late as a sub-

stitute for chloral. The dose is from thirty to fifty minims. (*Brit. Med. Jour.*, vol. i., 1883, pp. 215, 524, 956.) In case of poisoning, treatment as for CHLORAL.

PHOSPHORUS.

How taken.—As phosphorus paste (rat poison) or more rarely as phosphorus oil, phosphoric ether, or pure phosphorus. Only the white phosphorus is poisonous, the red being inert, even in very large doses. Matches commonly sucked for suicidal purposes and cause of many accidents in children. Chronic poisoning in manufacture of matches. Enough phosphorus paste to cause death may be purchased at an oilman's for one penny, and no questions will be asked.

Symptoms. — Pain in stomach. Vomiting, but usually not persistent, vomited matters may be luminous in the dark. Odor of phosphorus may be perceptible in the breath. May be partial recovery, then jaundice with urticaria. Pain in region of liver, which is found to be enlarged. Considerable general disturbance, with weakness of heart's action. Tendency to hemorrhage, there being bleeding from the nose, vomiting of blood, and blood-stained motions. May be petechiæ, or even extensive ecchymoses. The menses may appear. Failure of intellect shown by coma, and in some cases violent, noisy delirium. Convulsions not uncommon. Urine diminished in quantity, albuminous. Death may occur suddenly and unexpectedly. If recovery, convalescence much protracted.

Fatal Dose.—Difficult to say. If taken in solid form probably not very fatal, much more likely to

cause death if finely divided, or taken in solution. Recovery after sucking three hundred matches.

Treatment.—1. EMETIC of sulphate of zinc (twenty grains in water), or ipecacuanha (a scruple of the powder in water).

2. SULPHATE OF COPPER in three-grain doses dissolved in water, every five minutes till vomiting is induced. Continue the sulphate of copper in grain doses every quarter of an hour, giving with it ten drops of acetate of morphine, if rejected.

3. FRENCH OIL OF TURPENTINE. Half drachm doses of the French oil of turpentine every half hour. The German and American turpentines are useless.

4. A PURGATIVE of half an ounce of Epsom salts.

N. B. Oils and fats should on no account be given.

PHYSOSTIGMA—CALABAR BEAN—THE ORDEAL BEAN OF WESTERN AFRICA.

How taken.—Beans left about and eaten by children.

Symptoms.—Giddiness, faintness, prostration, loss of power in the lower extremities. Muscular twitching. Contracted pupils. Mind clear to the last. Death from asphyxia.

Treatment.—1. STOMACH-PUMP or an EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). Apomorphine (five minims of the 1 in 50 solution hypodermically) may be used as an emetic.

2. ATROPINE. A hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (two minims of the B. P. solu-

tion), or fifteen drops of the tincture of belladonna by mouth or rectum. To be repeated every quarter of an hour for an hour, or until the pupils dilate, or the pulse is quickened.

"The exhibition of the antidote should be persevered with in repeated doses until the pupils are fully dilated and the pulse rate increased, and probably also until the hypersecretion of bronchial mucus, which greatly impedes respiration, is checked."—*Fraser.*

3. CHLORAL. Should the above fail, give ten grains of hydrate of chloral (one tabloid) by mouth or rectum, every quarter of an hour.

4. STRYCHNINE. In very bad cases, a hypodermic injection of gr. $\frac{1}{50}$ of sulphate of strychnine (two minims of the B. P. solution), or gr. $\frac{1}{12}$ of nitrate of strychnine (four minims of the 1 in 50 solution), or twenty minims of tincture of nux vomica by mouth or rectum.

5. STIMULANTS freely; brandy, chloric ether, sal volatile.

6. ARTIFICIAL RESPIRATION.

PICROTOXINE.

The active principle of COCCULUS INDICUS.

How taken.—Used as a fish poison, to adulterate beer, and as a medicine. Sometimes employed to "hocus" people for commission of crimes. Said to be active principle of "Barber's Poisoned Wheat," for killing birds. For account of its physiological action and uses, see *British Medical Journal*, January 17th, 1880.

Symptoms.—Nausea, vomiting, muscular debility,

somnolence, and sometimes convulsions. Scarlatinal eruption in some cases.

Fatal Dose.—Not known. A rare poison. Probably two or three grains would be a poisonous dose. Ordinary medicinal dose for checking night-sweating of phthisis is gr. $\frac{1}{60}$, not gr. $\frac{1}{6}$, as misprinted in early copies of article on Phthisis in Quain's *Dictionary*. The Liquor Picrotoxine Aceticus of the Westminster Hospital Pharmacopœia, containing *two grains* to the ounce will, I fear, give rise to accidents, as there are no directions as to dose.

Treatment.—1. Stomach-pump or Emetic of sulphate of zinc (twenty grains in water), or of mustard (a tablespoonful in water), or of ipecacuanha (a scruple in water).

2. Chloral. Twenty grains in water, with ten grains more in a quarter of an hour, if necessary.

3. Bromide of Potassium. If tetanus, may be given in two-drachm doses every quarter of an hour, in addition to the chloral.

Pilocarpine.

For account of action, etc., see *British Medical Journal*, December 4th, 1880, and January 18th, 1881.

Treatment.—Atropine. The hypodermic injection of gr. $\frac{1}{50}$ of atropine (two minims of the B. P. solution of sulphate of atropine) will at once arrest the symptoms. Twenty-five minims of tincture of belladonna by mouth will succeed almost as well.

Pituri.

(*Duboisia Hopwoodii.*)

A stimulating narcotic used by the natives of New

South Wales. In its action allied to tobacco. See *Journal of Physiology*, vol. i., p. 377 ; vol. ii., p. 132.

How taken.—Eye lotion taken by mistake.

Symptoms.—It is slightly narcotic ; first salivates, then dries the mouth ; is a powerful respiratory poison ; produces general weakness, violent twitchings of the whole body, and severe headache.

Treatment.—See ATROPINE.

POISONOUS MUSHROOMS.

For symptoms, etc., see MUSHROOMS and MUSCARINE.

Treatment.—1. EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. ATROPINE. Give twenty drops of tincture of belladonna in water, or better, a hypodermic injection of gr. $\frac{1}{50}$ of ATROPINE (2 minims of the B.P. solution) to be repeated in half an hour if necessary.

3. CASTOR-OIL. Give an ounce of castor-oil to clear out intestines.

4. STIMULANTS, such as brandy, spirits of ether (a drachm in water), spirits of chloroform (a drachm in water), or sal volatile (a drachm in water).

5. WARMTH to the extremities, and poultices to the abdomen.

POTASH.

Taken in form of caustic potash or solution of potash, usually by accident. An impure carbonate is often sold under the name of "potash" for cleaning lamps, etc. Pearlash is also used for washing purposes.

Symptoms.—Whilst swallowing an acrid caustic taste. Mucous membrane of mouth partly destroyed. Heat and burning in the throat extending down to the stomach. Sometimes vomiting, the vomited matter being mixed with dark brown blood and shreds of mucous membrane. Skin cold and clammy. Purging with great pain in abdomen. May get stricture of œsophagus as a secondary result.

Treatment.—Give water freely, with VINEGAR, ACETIC ACID, citric acid, LEMON-JUICE, or orange-juice.

2. DEMULCENT DRINKS, such as white of egg and water, milk, gruel, and barley water.

3. OLIVE-OIL given freely.

PRIVET.

(*Ligustrum vulgare.*)

How taken.—Children eating the berries. Leaves and shoots are also poisonous.

Symptoms.—Vomiting, purging, drowsiness, and convulsions. It is said that it may excite the menstrual flow, but I do not get this effect clinically from the administration of a strong tincture even in large doses frequently repeated.

Treatment.—Copious draughts of hot water to facilitate vomiting, stimulants, friction to limbs, hot bottles to extremities, with, if necessary, a hypodermic injection of morphia, would probably be the best treatment.

PRUSSIC ACID.

For symptoms, see HYDROCYANIC ACID.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful in water), or of sulphate of zinc

(twenty grains in water), or of ipecacuanha (a scruple in water.

2. Stimulants, such as brandy, liquor ammoniæ (half a drachm in water), sal volatile (a drachm in water), or chloric ether (a drachm in water), frequently repeated. If patient cannot swallow, to be given as enema, or brandy may be injected under the skin.

3. Douche. Alternate hot and cold douche, the water being poured over the chest from a height.

4. Atropine. Hypodermic injection of gr. $\frac{1}{50}$ (2 minims of the B.P. solution), or thirty drops of the tincture of belladonna may be given by mouth.

5. Artificial Respiration should be kept up as long as necessary.

6. Battery. Mild, interrupted current to chest-walls, and over region of heart.

Rat Pastes.

Generally contain phosphorus. Sampson's is said to contain arsenic as the active ingredient. Roth and Ringeisen's is composed of phosphorus and arsenic.

Red Precipitate—Red Oxide of Mercury.

How taken.—An active poison but seldom used for criminal purposes.

Symptoms.—Pains and cramps in lower extremities, vomiting, skin cold and clammy. After some days gums may be affected.

Treatment.—1. Stomach-pump or Emetic of mustard, sulphate of zinc, or ipecacuanha.

2. White of Egg and water in unlimited quantities. Flour and water, arrowroot, gruel, barley-water, or linseed tea.

3. STIMULANTS, brandy, chloric ether, sal volatile.

RESORCIN.

Also known as resorcinal and metadioxyl-benzene. Isomeric with hydrochinon. Beautiful white feathery crystals having very little odor but a sweet pungent taste. Used as an antiseptic and antipyretic, especially in Germany. Not much used now in this country. For case of poisoning, see *Medical Times and Gazette*, October 22d, 1881.

Symptoms. — Giddiness, "pins and needles" all over. Insensibility, profuse perspiration from head to foot, lips blanched, tongue dry, pupils normal, conjunctive insensitive to touch, teeth clenched. Temperature low, 94.8° F. Urine black.

Fatal Dose.—Above symptoms from two drachms. Recovery with prompt treatment. Two drachms nearly proved fatal.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (a scruple in water), or of ipecacuanha wine.

2. WHITE OF EGG and water in large quantities.

3. Wash out the stomach with SODA, or with SACCHARATED LIME, mixed with large quantities of tepid water.

4. STIMULANTS freely; hot brandy and water, chloric ether, and sal volatile.

5. WARMTH to the extremities. Friction with the warm hand. INTERRUPTED CURRENT.

6. ATROPINE. Hypodermic injection of gr. $\frac{1}{50}$ of sulphate of atropine (two minims of 1 in 100 solution).

7. Inhalations of NITRITE OF AMYL.

8. Large doses of red wine are used in Germany as an antidote.

SALT OF SORREL.

This is an acid oxalate of potash. For treatment, see OXALIC ACID.

SAVIN.

Taken to procure abortion. But also for other purposes. Taken as a powder, or the oil may be used.

Symptoms.— Pain, vomiting, violent straining at stool, coma, or convulsions. Death in a few hours or not for some days.

Treatment.—1. EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. CASTOR-OIL, an ounce.

3. Linseed-meal poultices to abdomen.

4. MORPHINE. Hypodermic injection of gr. $\frac{1}{3}$ if necessary.

SCHEELE'S ACID.

This is twice the strength of ordinary prussic acid. For treatment, see PRUSSIC ACID.

SCHEELE'S GREEN.

This is arsenite of copper. For treatment, see ARSENIC.

SEWER GAS—CESSPOOL EMANATIONS.

Generally consists of a mixture of sulphuretted hydrogen, sulphide of ammonium and nitrogen, but is sometimes only deoxydized air, with an excess of carbonic acid gas. Fatal cases have occurred from

clearing out cesspools, and from the entrance of sewer gas into bedrooms. Bad symptoms often experienced from merely inhaling gas from open gratings in the streets. Cesspools, privies, and sewers, before being cleared out should be stirred up to permit of escape of contained gas, and should then be thoroughly exposed to the air, and disinfectants freely used before being touched.

Symptoms.—If poison concentrated, death may be immediate. If not sufficiently concentrated to cause death at once, the following symptoms may result from a few minutes' exposure: insensibility, all attempts to restore consciousness being unavailing, lips livid, conjunctivæ injected, eyes fixed and turned upward, pupils dilated and insensible to light. Respiration frequent, even sixty in the minute, pulse rapid, swallowing difficult or impossible. Tonic convulsions from time to time, almost as severe as in tetanus, the temperature rising to 104°. Death in twenty-four hours. If sewer gas much diluted, symptoms less severe, consisting only of nausea, diarrhœa, loss of appetite, and headache, with a general feeling of malaise.

Treatment.—1. Plenty of FRESH PURE AIR, all doors and windows being open.

2. ARTIFICIAL RESPIRATION. Sixteen in the minute; to be kept up by relays of people for many hours.

3. AMMONIA to the nostrils. Friction and warmth to the extremities, with brandy if necessary. Interrupted current to the limbs.

4. Stimulants in moderate quantities, hot BRANDY AND WATER or gin and water for example. To be injected into the rectum if power of swallowing gone.

5. COFFEE. Injection of a pint of hot strong coffee into the rectum.

6. OXYGEN. Inhalation of about two quarts of oxygen, if obtainable.

7. DOUCHE. Hot and cold alternately to head and chest.

8. BLEEDING or transfusion might be resorted to.

9. CATHETER to be used in prolonged cases.

SIMPSON'S RAT PASTE.

Unlike most vermin-killers does not contain strychnine. Said to be composed of starch, malt, and arsenious acid (40 per cent.), scented with oil of rhodium. For treatment, see ARSENIC.

SNAKE BITE.

In Great Britain and the greater part of Europe the only poisonous snake is the adder, a variety of viper. In India the most destructive species are the cobra, krait, echis, and daboia. Activity of venom differs in character and intensity, in different genera and species. Differs in same individual under varying conditions of temperature, climate, exhaustion, etc. Poison absorbed by mucous membrane so that sucking wound not altogether unattended with danger. See Sir Joseph Fayrer's Lectures, *Lancet*, February, 1884.

Symptoms.—Intense shock. Locally partial paralysis, pain, infiltration, swelling, inflammation, and ecchymosis. Depression, faintness, cold sweats, nausea, vomiting, exhaustion, lethargy, loss of consciousness. Paralysis first of lower extremities, then of whole body, including tongue and muscles of

deglutition. Albuminuria (especially in viperine poisoning), hemorrhage, relaxation of sphincters, exhaustion, lethargy, convulsions, death.

1. LIGATURE. A ligature—a pocket-handkerchief, or a piece of rope, if nothing better at hand—should be tied tightly round the limb between the wound and the heart.

2. INCISION AND CAUTERIZATION. Make an incision through the bite, reflect the skin so as to expose the tissues wherever altered in color, and dissect them out thoroughly. Then cauterize with a red hot iron or live coal, or apply strong nitric acid, or solution of permanganate of potassium. If no better means available explode gunpowder on the part.

3. STIMULANTS. Brandy, whiskey, champagne, etc., should be given freely, even to the extent of making the patient intoxicated.

4. BLEEDING followed by TRANSFUSION is likely to prove of avail. For composition of solution, see Transfusion. Might bleed from one arm and transfuse fresh blood into the other.

It must be remembered that all snake poisons are not identical.

5. ARTIFICIAL RESPIRATION should be maintained for some hours. Keep the patient warm and at rest, and give him plenty of fresh air.

6. PERMANGANATE OF POTASSIUM. This is the so-called De Lacerda's treatment. Inject under the skin, in two or more places, 20 minims of CONDY'S FLUID or solution of permanganate of potassium, which should, if possible, be freshly prepared. The Wyeth tablets are useful for making this solution. It is essential that the antidote should come in actual

contact with the poison, and it is a good plan to inject it into the orifice made by the fangs of the snake. It is a chemical, not a physiological, antidote. If limb much swollen make three or four injections at circumference of the swelling. Use problematic, see *Lancet*, vol. ii., 1881, and vol. i., 1882. Also Wynter Blyth, *On Poisons*.

7. Potash. May use liquor potassæ, one part with six of water, in same way, but would be necessary to use it with more caution. Also give liquor potassæ by mouth, twelve minims in brandy every hour; value very doubtful. See *Lancet*, May 6th, 1882.

8. Ammonia. Halford's plan consists of the injection into the radial vein, by means of a hypodermic syringe of twelve minims of the liquor ammoniæ fortior, diluted with three times its volume of water. The vein should be first exposed.

9. The ligature should be removed for a second or two at a time, and then quickly reapplied so as to admit only a small quantity of the poison into the circulation.

Soap Lees.

This consists of carbonate of potassium, or sodium mixed with caustic alkali. For treatment, see Potash.

Soda.

Treatment.—1. Vinegar, Acetic Acid, citric acid, Lemon Juice, or orange juice, freely diluted with water.

2. Demulcent Drinks, such as white of egg and water, milk, gruel, and barley water.

3. Olive Oil freely.

Soothing Syrup.

The preparations sold under this name usually contain opium. Said to be the cause of death of 15,000 children every year. For treatment, see Opium.

Squill.

An active heart poison. Symptoms allied to those of Digitalis. See *Lancet*, vol. ii., 1886, p. 390.

Stramonium—Thorn Apple—Devil's Apple—Jamestown Weed.

(*Datura Stramonium*).

Annual plant common in England, frequently found in waste places and growing on dunghills. Easy of cultivation.

How taken.—Infusion of leaves mistaken for senna tea, and for horehound tea. Seeds eaten by children. Extract dispensed for extract of sarsaparilla.

Symptoms.—Very similar to belladonna poisoning. Dryness of skin and throat. Dilated pupils. Delirium, spectral illusions, double vision. Rash on skin. Paralysis of lower extremities. Coma.

Fatal Dose.—One hundred seeds killed a child two years old. Death from decoction of one hundred and twenty-five seeds.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. Stimulants, such as brandy, champagne, sal volatile, or chloric ether.

3. Coffee. An enema of a pint of hot strong coffee.

4. Mustard to the calves of the legs, hot-water bottles to the feet, rousing by flicking with a wet towel, alternate hot and cold douche, interrupted current to the limbs, etc.

5. Pilocarpine. A hypodermic injection of half a grain of pilocarpine (10 minims of the 1 in 20 solution), to be repeated in half an hour, if necessary, or two drachms of tincture of jaborandi by mouth or rectum.

6. Artificial Respiration to be maintained for two hours if necessary. Catheter should be used if retention.

Strychnina—Strychnine.

An alkaloid found both in Nux Vomica seeds (*Strychnos nux vomica*) and St. Ignatius' Bean (*Strychnos ignatia*), also in some of the other Strychnaceæ.

How taken.—Cases of poisoning of very frequent occurrence. Many deaths from vermin-killers, which are usually made of meal or flour with strychnine and perhaps arsenic. The names of Butler, Battle, and Gibson are not unfamiliar to the toxicologist. Death from eating pheasants, larks, and other birds killed with strychnine. Often mistaken for santonin which it somewhat resembles—also given instead of salicin and of jalapin and rhubarb. In one case sold for tooth-powder, and in another as a seidlitz powder. In one instance a man inoculated his hand with it whilst making rat-poison. Often used for suicidal purposes, sometimes for murder.

Symptoms.—Tetanus, convulsions coming on in paroxysms at intervals, varying in different cases from three minutes to half an hour, each lasting from

one to five minutes or even longer. Opisthotonus, as a rule, the whole body being arched backwards, but sometimes emprosthotonus (arched forwards), or pleurotonus (sideways). During paroxysm eyeballs prominent and pupils dilated, respiration impeded, pulse feeble and very rapid. Sometimes convulsive screams. Often great anxiety. Usually death from asphyxia during a paroxysm, or may be from collapse.

Diagnosis.—Only difficulty is from idiopathic or traumatic tetanus.

1. Absence or presence of a wound may be some guide, but if wound small or not of recent date, will not give much help.

2. In tetanus paroxysm affects chiefly the masseters, the cervical muscles, and muscles of the extremities, the muscles of respiration being less involved. In strychnine poisoning tetanus of respiratory muscles very prominent.

3. In tetanus lockjaw is usually the first symptom. In strychnine poisoning it may be absent, or, at all events, never last longer than the spasm of the other muscles; moreover, it is never the only symptom.

4. Strychnine tetanus runs its course in a few hours, ordinary tetanus may last for some days.

Fatal Dose.—Three grains usually fatal. Smaller doses sometimes fatal, gr. ½ for example, gr. $\frac{1}{16}$ may kill a child. In one case recovery after twenty grains, but an emetic was given at once. Both physiological and chemical tests for strychnine are extremely delicate. Dr. Dupré tells me he thinks it would be possible to detect chemically $\frac{1}{200000}$ of a grain.

Treatment.—1. STOMACH-PUMP, if it can be quickly

obtained, for after tetanic symptoms have set in the introduction of the tube would excite a paroxysm, and it would be useless. An EMETIC of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). Should a difficulty be experienced in opening the jaw, a hypodermic injection of apomorphine (five minims of the 1 in 50 solution or one of the tabloids) should be given, or the patient may be put under chloroform or ether.

2. ANIMAL CHARCOAL, *ad libitum*, or TANNIC ACID, *ad libitum*, or tincture of iodine. To be followed by an emetic, or the stomach-pump.

3. BROMIDE OF POTASSIUM, half an ounce in water, with thirty grains of HYDRATE OF CHLORAL. Two drachms of the bromide, with or without ten grains of chloral, may be given every fifteen or twenty minutes if necessary. See *Lancet*, January 8th, 1881.

4. NITRITE OF AMYL inhalations, the amyl being poured freely on a handkerchief and held close to the nose.

5. The patient may be kept fully under CHLOROFORM or ETHER.

6. CURARE. A hypodermic injection of gr. ⅓ (four minims of the 1 in 12 solution) may be given.

7. ARTIFICIAL RESPIRATION if possible. *This is important.*

STRYCHNINE AND MORPHINE.

The morphine delays the appearance of strychnine poisoning for some time—in one case for eight hours. See *Lancet*, October 28th, 1882.

SUGAR OF LEAD.

For treatment, see LEAD.

Sui Poisoning.

See Abrus Precatorius.

Sulphate of Copper.

For treatment, see Copper.

Sulphate of Zinc.

For treatment, see Zinc.

Sulphuric Acid—Vitriol—Oil of Vitriol.

How taken.—Used for suicidal purposes by domestics, mechanics, etc. Mistaken for some beverage. Used in an enema in place of olive oil. For purposes of murder given to children whilst asleep. Pouring acid in ears of victim whilst asleep.

Symptoms.—Burning pain, extending from mouth to stomach. Mucous membrane of mouth white in color. Vomiting and violent retching, black, bloody masses being ejected in large quantities. Insensibility, with perhaps violent tetanic spasm from the intensity of the pain. Death may occur very rapidly, or, if stomach empty, perforation, peritonitis, and death less rapidly. If life prolonged, raging thirst, with inability to swallow. Aphonia. Copious salivation. Skin pale and cold, and covered with clammy perspiration. Shreds of mucous membrane may be detached in vomited matter or with motions. Death perhaps from secondary symptoms, such as stricture of the œsophagus.

Fatal Dose.—Much depends on amount of food in the stomach. Almost any appreciable amount may cause death, but, on the other hand, a patient might recover after taking as much as an ounce.

Treatment.—1. Soap and Water, Chalk and

WATER, whitewash and water to be taken freely. Large draughts of WATER if nothing else at hand. *The nearest remedy is the best.* Time all important.

2. MAGNESIA, LIME-WATER, or BICARBONATE OF SODIUM, or bicarbonate of potassium. Common WASHING SODA diluted freely with water will do. DINNEFORD'S FLUID MAGNESIA is very useful.

3. MILK, WHITE OF EGGS, oil, linseed tea, thick gruel, or arrowroot are all useful.

4. MORPHINE. A hypodermic injection of half a grain to ward off shock.

As a rule the stomach-pump cannot be employed with safety.

See also VITRIOL THROWING.

SYRUP OF POPPIES.

For treatment, see OPIUM.

TARTAR EMETIC—TARTARATED ANTIMONY.

For treatment, see ANTIMONY.

TARTARIC ACID.

How taken.—Mistaken for aperient medicine.

Symptoms.—Great pain in abdomen, convulsions, collapse, death.

Fatal Dose.—One ounce.

Treatment.—1. CHALK, LIME, or whitening given freely in water. The whitewash from a wall, or fence, or ceiling may be used. Lime-water is an antidote, but the saccharated solution, being stronger, is better. It should be given in drachm doses frequently repeated.

2. CASTOR-OIL. An ounce of castor-oil should be given to clear out the intestines.

The administration of potash, soda, ammonia, or the carbonates should be avoided.

Teething Powders.

Commonly prepared according to following formula: Calomel, one grain; Dover's powder, two grains; sugar of milk, three grains. Mix. This is the dose for a child over one year of age. Children under twelve months are given half or a quarter of a powder. If bad symptoms result, treatment should be as for opium poisoning.

Tobacco—Nicotiana Tabacum.

How taken.—Mistaken for coffee. Overdose given as an emetic. Tobacco chewing. Used as a compress for wounds. Taken to cure worms. Applied locally to cure itch. Used to procure abortion.

Symptoms.—Nausea, vomiting accompanied by great weakness and faintness. Confusion of ideas, dimness of sight, weak pulse, cold skin covered with clammy perspiration. Pupils at first contracted, then dilated.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful in water), sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. Tannic Acid, half a drachm in water, repeated frequently, or strong tea. To be introduced by the stomach-pump if necessary.

3. Nux Vomica. Twenty minims of nux vomica by mouth, or, better, a hypodermic injection of gr. $\frac{1}{25}$ of Strychnine (2 tabloids or 2 minims of the 1 in 50 nitrate of strychnine solution).

4. STIMULANTS, brandy, champagne, sal volatile, chloric ether, to be given freely.

5. WARMTH to the surface by hot bricks, hot blankets, etc. Friction with the warm hand.

6. RECUMBENT POSITION should be strictly maintained.

TURPENTINE—OIL OF TURPENTINE—SPIRITS OF TURPENTINE—TURPS.

How taken.—Sometimes given to children for criminal purposes. Taken to expel worms. Given in mistake for other medicines.

Symptoms.—Odor in breath. Intoxication. Contracted pupils, stertorous breathing, coma, collapse, and tetanic convulsions. Irritability of bladder, the urine having the odor of violets. Some resemblance to poisoning by opium.

Fatal Dose.—Child under two years of age recovered after taking a tablespoonful.

Treatment.—1. STOMACH-PUMP or EMETIC of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water). Should these fail, a hypodermic injection of gr. $\frac{1}{5}$ of APOMORPHINE (ten minims of the 1 in 50 solution or one of the tabloids) may be given.

2. SULPHATE OF MAGNESIUM, an ounce in water as a purgative.

3. DEMULCENT DRINKS, such as milk, white of egg and water, barley-water, etc.

4. MORPHINE. If much pain, a hypodermic injection of half a grain of morphine, or thirty drops of laudanum by mouth.

VERATRINA—VERATRINE.

An alkaloid found in Sabadilla and probably also

in *Veratrum album* and *Veratrum viride*. May be crystalline, but is more commonly amorphous. No odor, strongly and persistently bitter, and highly acrid taste.

How taken.—Usually mistaken for other medicinal substances. Murder.

Symptoms.—Burning sensation in throat and gullet with increased secretion of saliva. Painful sensation may extend to stomach, and there may be inability to swallow. Retching and vomiting, diarrhœa and pain in the bowels. Headache, palpitation, with feeling of anxiety, giddiness, faintness, slow and weak pulse, respiration superficial and labored. Pupils generally dilated, but may be contracted. May be convulsions.

Treatment.—1. STOMACH-PUMP or EMETIC of mustard (a tablespoonful of the powder in water), or sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple of the powder in water).

2. STIMULANTS, brandy, champagne, chloric ether, sal volatile, etc.

3. COFFEE. Hot strong coffee, injected into the rectum if necessary.

4. WARMTH to the extremities, hot-water bottles, warm blankets, friction with the warm hand, etc.

5. RECUMBENT POSITION to be strictly maintained.

VERDIGRIS.

This is subacetate of copper. For treatment, see COPPER.

VERMIN-KILLERS.

Usually contain strychnine, arsenic, or phosphorus. *Battle's* consists of 23 per cent. of strychnine with sugar, flour, and Prussian blue. *Butler's* consists of

5 per cent. of strychnine mixed with flour and soot, a sixpenny packet weighs about a drachm, and contains from two to three grains of strychnine. *Gibson's* contains half a grain in each packet. *Simpson's* contains 40 per cent. of arsenious acid with starch and malt. *Roth and Ringeisen's* is composed of phosphorus and arsenic.

"Vitriol Throwing."

This has become a popular amusement of late years. It is a woman's mode of expressing her sense of her husband's infidelity.

Treatment.—1. Wipe off the acid at once and wash the face in water, using soap freely. A handful of soda or bicarbonate of sodium, or bicarbonate of potassium, in a basin of water is still better. Be as quick as you can.

2. Should the acid have gone in the eyes first wash them with water and then syringe them with an alkaline lotion (five grains of bicarbonate of sodium to the ounce of water). Open the lids and drop in a few drops of castor-oil or olive oil.

3. Keep your patient quiet and in a darkened room. If much shock, give brandy and water or champagne followed by a hypodermic injection of morphine (four minims of the 1 in 12 solution)

4. If any elevation of temperature during the first twenty-four hours, give the following :

℞.—Tinc. aconiti . . . . . ♏xx.
Aquam ad . . . . . ℥iv.—M.

A teaspoonful every ten minutes for the first hour and then hourly for six hours. This is about a minim in the dose.

Warburg's Tincture.

A remedy of great value in the treatment of intermittent and remittent fevers. Consists of sulphate of quinine (nine and a half grains to the ounce), Socotrine aloes, rhubarb, "confect. Damocrates" (a mixture of aromatics officinal in Ph. Lond. 1746), elecampane, crocus, fennel, prepared chalk, gentian root, zedoary (a kind of ginger), cubebs, myrrh, camphor, white agaric (the agaric of the larch, see *Practitioner*, November, 1882), and proof spirit. The dose is half an ounce, repeated in three hours. For full account of uses, etc., see letter by Prof. Maclean, *Lancet*, November 13th, 1875.

Wasp Stings.

See Bee Stings.

White Precipitate.

Symptoms.—Vomiting, cramps, purging, griping pain in the stomach, convulsions.

Fatal Dose.—Not a very active poison; might recover after taking three drachms or more.

Treatment.—1. Stomach-pump or Emetic of mustard (a tablespoonful of the powder in water), or of sulphate of zinc (twenty grains in water), or of ipecacuanha (a scruple in water).

2. White of Egg (unboiled), mixed with water, to be given in unlimited quantities. Flour and water, arrowroot, gruel, barley-water, and linseed tea, are all useful.

3. Stimulants, brandy, chloric ether, sal volatile.

White Vitriol.

For treatment, see Zinc.

Woorara.

For treatment, see Curara.

Yew.

(*Taxus Baccata.*)

How taken.—Leaves or berries eaten by children or lunatics. Decoction of leaves taken to bring on the menses. Yew-tree tea sometimes used to procure abortion.

Symptoms.—Convulsions, insensibility, coma, dilated pupils, paleness of the countenance, small pulse, cold extremities, nausea, and vomiting. Death may be sudden and unexpected.

Fatal Dose.—Not known, but said that a teaspoonful of the leaves has caused the death of an adult.

Treatment.—1. Emetic of mustard, sulphate of zinc, or ipecacuanha.

2. Stimulants freely, such as brandy, champagne, sal volatile, or chloric ether.

Zinc.

The chloride is the salt which most commonly gives rise to dangerous symptoms. Used in soldering as a flux. Basis of Burnett's Disinfecting Fluid, which contains about 230 grains to the ounce.

Symptoms.—Corrosion of lips and mucous membrane of the mouth. Pain and incessant vomiting, acceleration of pulse and respiration, dilatation of pupils, paralysis of the voluntary muscles, coma, death.

Treatment.—1. Carbonate of Sodium or Carbonate of Potassium in large quantities, dissolved in warm water. Common washing soda will do if well diluted.

2. MILK and EGGS freely, with tepid water.

3. TANNIC ACID, gallic acid, decoction of oak bark, or STRONG TEA.

4. MORPHINE. A hypodermic injection of half a grain, or thirty drops of laudanum by mouth.

5. Linseed meal poultices to abdomen.

6. If much pain in the abdomen, an enema of gruel or starch and water may be given.

THE END.

APPENDIX.

Notes on "Treatment of Cases of Poisoning."

The problem in cases of poisoning is usually threefold, (1) to prevent more of the toxic agent being introduced; (2) to antagonize or neutralize that already absorbed; and (3) to overcome its effects upon the system. The remedies are mechanical (massage, electricity, gymnastic exercises, emesis, hot and cold applications, artificial respiration, etc.), chemical, (as when the agent can be rendered inert by the administration of an antidote which enters into combination with it), and therapeutical (a) when the so-called physiological antidotes are administered, and also (b) when stimulating enemata, emetics, and counter-irritants are used to overcome its effects.

A poison is a substance which when introduced into the human organism is capable, in comparatively small doses, of exercising deleterious effects, and which, if given in large quantities, may, by its own action, cause death.

Many proprietary or so-called patent medicines contain poisons, and are responsible for considerable mortality among both adults and children.

Some common sources of domestic poisoning are as follows:

Cough medicines are liable to contain morphine, hydrocyanic acid, or tartar emetic.

Hair restorers contain lead.

Enamel for complexion may contain lead, calomel, or bismuth.

Fly poison is usually arsenic.

Vermin destroyers contain corrosive sublimate (for bedbugs), phosphorus (for rats and roaches), and arsenic ("Rough on Rats" has about fifty per cent. of arsenic).

Paris-green is arsenite of copper (used for poisoning potato bugs, also as a pigment for candy, printing wall-paper, etc.).

The antidote-bag, besides the stomach-pump and hypodermic syringe, should contain a small Gaiffe battery, and the following drugs, with a small pair of scales for weighing them:

Copper sulphate (copper is the best emetic for phosphorus poisoning).

Saccharate of lime (for carbolic acid or oxalic acid poisoning).

Solution of iron and magnesia (antidotum arsenici, Ph. G., or Ferri oxidum hydratum cum magnesia, U. S. P.)

Crystals of citric acid (for alkaline poisoning).

Sodium carbonate (for acid poisoning).

Sodium chloride (for silver nitrate poisoning).

Whiskey, mustard, Epsom salts, alum, tincture of capsicum (useful as a counter-irritant), chloroform, morphine, apomorphine, atropine, nitrite of amyl, and tannic acid, and stronger water of ammonia.

The following additional special notes may be serviceable:

If a person is choking or strangling, endeavor to have him swallow the white of an egg, which may dislodge the substance, providing that it cannot be reached by the finger or forceps. If suffocation is threatened, the crico-thyroid membrane can be divided with an ordinary pocket-knife, and time gained for further trials to remove the offender, either by bringing it up with forceps, or pushing it down with a probang. In some cases it is advisable to administer an emetic of apomorphine (gr. ⅛ to an adult) hypodermically, or placed upon the tongue.

Alcoholic patients should never be allowed to sleep off their "drunk," because their condition favors the occurrence of apoplexy. Give stimulating enemata of salt and water. Examine the urine for alcohol;[1] if taken in excess, a compara-

[1] The test used by the writer is to place a cubic centimetre of pure sulphuric acid in a test-tube, and pour upon it twice as much of the urine. Drop a crystal of bichromate of potash in, and slowly mix the fluids by rotation. If there is alcohol present in notable quantity, an emerald green color will appear.

tively large proportion of the agent can be obtained from the urine by distillation. Keep the patient warm.

In using whitewash in water for poisoning by oxalic or other vegetable acids, see that it does not contain any unslaked lime, which might aggravate the patient's condition. Try tooth-powder as an antidote for oxalic acid.

Cases of apparent sporadic cholera may be really those of arsenical poisoning. Look out for cholera coming on during good health and after a meal.

For corrosive sublimate albumen is the chemical antidote. If white of eggs is not convenient, kill the cat or dog, and administer blood to patient. Flour and water *ad libitum.*

Anæsthetics should never be administered without there being at hand nitrite of amyl, alcohol, spirits of ammonia, a hypodermic syringe, a galvanic battery, and capable assistants.

In narcotic poisoning, nitro-glycerine in alcohol (one per cent. solution), from two to five minims injected hypodermically, equals an ounce of brandy. Caffeine (gr. xx.) injected into rectum with hot water in cases of poisoning by opium.

In burns by acids, vitriol throwing, etc, the white extract of Pinus Canadensis (Kennedy's) will relieve the pain, after the surface has been washed with an alkaline solution.

A number of cases in which alarming depression followed the use of cocaine have been reported. The treatment which has been found successful is alcoholic stimulants and morphine hypodermically.[1]

Varnish is made from a species of rhus, which is allied to or identical with our poison ivy. Dr. H. N. Allen, of Corea, has recently called attention to this source of poisoning. He says that some persons are so sensitive, that simply passing the shop where the fresh varnish is used will give rise to an acute inflammatory affection resembling erysipelas. He has found a recent infusion of freshly cut camphor-wood shavings useful in relieving the symptoms. For rhus-poisoning numberless specifics have been brought forward, but we

[1] Case of Dr. McIntyre, *St. Louis Medical and Surgical Journal.*

prefer an alkaline solution, either of bicarbonate of sodium, or of the borate of sodium in camphor water.

Sausage-poisoning, egg-poisoning, beef-poisoning, due to eating stale or tainted food, are now believed to be caused by ptomaines developed by putrefaction. Dr. Vaughan has found, in an outbreak of ice-cream poisoning, that the effects were due to an agent of this kind in the milk, which he called tyrotoxicon.

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